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The institute, carried forward under the auspices of the 1960-61 Committee on Staffing Higher Education (a committee appointed by the Wisconsin Association of Presidents and Deans of Institutions of Higher Learning) was attended by approximately 150 students interested in teaching as a career. The students came from public and private colleges and universities throughout the State. Speakers included professors and members of professional and governmental education agencies, who directed their remarks to the rewards and drawbacks in college teaching.

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PROCEEDINGS

OF

AN INSTITUTE ON COLLEGE TEACHING

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education

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EDITED BY

R. ROBB TAYLOR

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PROCEEDINGS
of
AN INSTITUTE ON COLLEGE TEACHING
held at
Marquette University
Milwaukee, Wisconsin
June 5-7, 1961

Edited by
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Assistant to the Vice President—Academic Affairs
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PREFACE

In preparing this set of proceedings, I have built up a long list of obligations. It would be impossible to record them all, or to arrange them in any accurate order of magnitude. Most people already know the extent of their contributions; I hope they will take pleasure and pride in this work in the same measure as they have labored on its behalf. A first requisite is an idea; this was initiated by my colleague, Dr. Joseph Totaro, and carried forward by the membership of the Committee on Staffing Higher Education. A second essential was financing, generously provided by The Johnson Foundation and the Western Printing and Lithographing Company. A staff and participants are necessary ingredients, too—the speakers and the listeners were both indispensable to the institute's success. Physical needs were graciously taken care of by Marquette University.

The success of the institute is not a question in my mind. Evidence of this success will be hard to point out, however. College students rarely decide upon an important course of action like a forty-year career on the basis of a single three-day meeting, no matter how inspiring the meeting. I hope they never will. If any of them have been confirmed in a prior inclination to become professors, fine! If some have been stimulated by the institute to consider this profession as a life's work—some who would not otherwise have thought of it—excellent! And if some have been led to the conclusion that an initial interest in college teaching was ill-founded, this will be worthwhile, too. The real test is whether significant questions were raised and substantial evidence intelligently applied in seeking answers to them. I am confident that this happened.

We hope that this institute paves the way for similar programs in the future. The Committee on Staffing Higher Education intends to explore the possibilities in Wisconsin for continuing and expanding what has been started here. If our experience can also be used to advantage by others elsewhere, this will be an extra return. It is in the sincere hope that this may come about that we have prepared these proceedings for general distribution.

R. R. T.

Madison, Wisconsin
September 1961

Monday, June 5

Theme for the day: REWARDS AND DRAWBACKS IN COLLEGE TEACHING

Miller Upton

President, Beloit College
Beloit, Wisconsin

In this age of science we are all constantly grasping at straws to raise our stature just that much more in this auspicious field. So I am extremely grateful to have this opportunity to speak from behind a science demonstration table and in this magnificent raised lecture room, because I can assure you it is the closest I will ever come to the real thing. I am also extremely grateful to have been honored—and I consider it just that—to speak to you on this important occasion. I am extremely interested in this whole program. I suppose we must now still refer to it as an experiment—but I feel it is an experiment that is almost certainly destined for success, because the whole area of education needs this type of concentrated attention, this type of careful planning, in terms of preparing others to come in and take over the significant role of teacher.

I don't know whether I was the first, fifth or tenth to be approached for this important assignment this morning. I don't really care; I am gratified—extremely gratified—for the opportunity to speak to you. I accepted this assignment not because I felt I was qualified to take on the assignment, but because I realize that really no one is fully qualified for this task. I say this because teaching in my estimation is an art, and therefore we can't very well generalize about it. Some will be attracted to teaching and be successful in it because of certain qualifications and interests and competencies. Still others will be motivated by other considerations. It is related to the individual, the finesse that each individual is able to bring to the task, and so generalization about the rewards and the dissatisfactions is very hard to come by.

Nevertheless, although we are dealing with an art, there are generally applicable considerations for which, though the degree of emphasis will vary as to each individual, there is a point of relevance with each individual. And it is these general considerations that I would like to give some attention to, hopefully to provide you with some background in anticipation of a career in the field of teaching out of my own experience to which Father Freidrich has referred in his introduction of me.

The very fact that teaching is an art provides an exhilarating and satisfying experience to some, and a disconcerting, disturbing experience to others. It depends upon the individual nature of the person involved.

Being an art, there is tremendous opportunity for creative expression. But as with all creative expression, a substantial amount of concentration, of devotion, of patience, is required. I think we must recognize that teaching is a process by which one helps another learn; it is not a process by which information is merely dispensed with the attitude that one can take it or leave it or that the individual student can take it or leave it. Dissemination of information is a substantial part of teaching, but it is only a part, and to be qualified to dispense such information with authority one must of course be a thorough scholar and be fully in love with his particular subject.

But here again, though scholarship and unquestioned competence in the field is a key requisite to effective teaching, it is only part of it, as I said before. The other part is to have a comparable drive in wanting to communicate this information you have, in wanting to communicate your own love and respect for your own subject matter, to help the individual student acquire a level of competence that you have, to see the beauty of the subject matter as you see it, to help the individual student develop intellectually because you are so consumed by your own recognition of the importance of intellectual development and intellectual achievement.

The person who has only the one drive, to become proficient in a field, to become a thorough scholar in his subject, I would say is only a half-teacher. And similarly, the individual—and there are many—who has only the desire to help others grow intellectually, to help others acquire a broader concept of knowledge in general is, too, only a half-teacher. There must be a combination of the two drives, going hand-in-hand; you must be a thorough scholar in your own right, you must have a great love for scholarship in your field—but you must have an equivalent drive, it seems to me, to communicate, either by lecture, by writing, by group discussion, or by personal conversation, the subject matter of your own and the love that you have for the subject matter and for intellectual development in general.

One of the greatest drawbacks often claimed for teaching is the lack of material reward. Much has been said about this, in recent years in particular, and of course in some comparative sense this cannot be denied. I remember seeking out one of my teachers when during my senior year I thought I might be interested in going on with college teaching, and the way he expressed it to me was that I would have to accept the vow of academic poverty. Well, now, this is a rather extravagant way of putting it; he didn't believe it in just that sense, but it is a way of magnifying this one and oft-claimed drawback to teaching. And yet, on the other side, I'd like to ask you, have you ever known of the child of a college teacher who, if qualified and interested in going on with a college education, did not have the opportunity to do so? Or, do you know of a teacher who is without, let's say, transportation? I think what we ought to stress is that teaching denies—if you don't have independent income, as some fortunate people do—what are called the "fringe luxuries." But only them. The important major needs, the important living needs, are not denied; only the fringe luxuries.

I would like to elaborate on the important point of educational opportunities for the children of college teachers. It might be said, of course, that they are forced or required to go to the college where the father happens to be teaching, to take advantage of the tuition remission that is generally involved, and therefore he or she may not have the full opportunity to choose the type of college he would want. But I ask you, in this day and age, what parent is able to choose the particular college—the particular institution—that his child might think he or she wanted to go to? I wince in being a "fund-raiser" for a certain institution right now at the number of rather "well-heeled" individuals, if you will, whose children are turned down. I don't know if their coming there or their admission would have contributed any to my responsibility for fund-raising. But certainly, in the present day, and more so in the years to come, a college professor's child is not harmed any by having to go to a particular institution in preference to having a free choice.

Let me say one other thing in connection with this matter of low pay, because I think so much emphasis has been given to it in recent years I would like to give the equivalent amount of emphasis to showing some of the other sides to it. What we ought to emphasize in connection with teacher pay is not that it is so very low in an absolute sense, but that in time of change there tends to be a substantial lag. The discrepancy that has existed during the inflationary period since the second World War, between the pay for teachers and the pay for other professional areas, is most unfortunate. It is really a blight on our society, a blight that probably not one individual or group can be held responsible for. But any of you who know of the situation now and have faith in the inexorable economic law of supply and demand—and I have strong faith in it—will know that in the not-too-distant future the pay scale for college teachers is going to increase substantially, so that, in comparison with most other professional pay, it is going to be on a very agreeably comparable basis. In some ways, in some respects, it is almost there right now, and so I know I would hesitate and hate to think of the great stress that has been given to the point of low pay in recent years being carried on in the years of the present and the immediate future.

But let me move on to some of the other considerations. It seems to me that one of the most gratifying aspects of teaching is that in essence you have control over your time. To the extent that you have to meet certain classes periodically, there you do not have absolute control—no one ever can have absolute control over his time. But I don't know of any other undertaking, any other profession or career, where one has as much control over his time as he does in the profession of college teaching. At the same time, this is a great booby-trap of college teaching, because the more you have control over your time, the more there is a danger of temptation, of rationalizing why you should be doing this instead of that, and therefore wasting you time so far as your basic work, your basic responsibility, is concerned. A little digression on this: the wives often fail to recognize the booby-trap characteristic here, and see in the professor-husband a cheap babysitter while she goes on the weekly grocery-shopping tour,

or to the beauty parlor, or something else. I say this with a smile on my face, I see it elicits a few smiles among the audience, but I have seen several faculty colleagues whose careers, I felt, were really hampered by this. So I urge you men in the audience to indicate in a very tactful and diplomatic way that your free time is not best used as a babysitter or in some other domestic activity of the sort. You should emphasize the booby-trap characteristic of what I consider one of the greatest advantages of college teaching, the tremendous freedom that you have in terms of the utilization of your own time.

I remember, too, my undergraduate dean in referring to this point, not directly but obliquely, indicated what I have come to find absolutely true: that teaching offers the opportunity for the lazy person to have the laziest, most idyllic type of lazy existence possible, and yet offers the conscientious person the hardest, most demanding life possible. For those who are driven by those two compulsions I mentioned at the beginning—thorough competence in scholarship in the chosen field of learning, and drive to communicate to others this learning and this love—for the person who is thoroughly motivated in this regard, I know of no other profession as demanding of your time, as hard in terms of such demands, as college teaching—except, possibly, that of the medical profession. And I see a shift taking place in this regard in contemporary society that makes me think that in the future the college teacher will have the dominant position in this regard. The freedom that you have in terms of the utilization of your own time, rather than making life easy, plays upon your conscience and offers you an opportunity for your own free choice, which ends up in demanding more of you and requiring that you apply yourself more rigorously than if you had an ordinary type of demanding job in business, in law, or any other activity save possibly medicine, as I mentioned before.

I think I might summarize several of what I consider to be real advantages, rewards, of college teaching by saying that it offers the delightful experience of being paid to do what you want to do anyhow, and what other people would give their right arms to be able to do. Just think of it—you get paid to continue your own studies and to continue your own intellectual development. You get paid to continue your association with young people, to spend your life working with, associating with, a younger generation. Now you of the younger generation in the audience don't fully appreciate this particular point now, but I can assure you you will come to appreciate it. The only fountain of youth that really exists in our modern world, I am quite sure, is the opportunity to associate with an age group much younger than yourself. And this is an extremely rewarding thing, analogous—as I have suggested—to a fountain of youth. You get paid for working with a group of individuals, your colleagues, who are among the most stimulating and exciting people that exist. They get your goat, they get under your skin, you feel like you'd like to cut them off at times, but only because they are so challenging, only because they are so stimulating, only because they are not satisfied with the glib polite response in personal association and relationships. And you get paid for living in the most idyllic type of community that we, with our human frailties, can

conceive of at the present time: a community that is devoted to the advancement of culture, a community that is devoted to the advancement of learning. And here, you are able to spend your life and get paid for it, existing in such a community as this. You get paid for living in a world of ideas. You get paid for devoting your own life to the life of the mind. And you get paid, believe it or not, for playing with ideas. People throughout the world, in all walks of life, are paid for ideas, but the teacher is paid for even playing with ideas.

So when you add all of this up, it seems to me a most rewarding type of experience. Once having mentioned all of these glorious types of experiences, there tends to be an offset, however. And to me—I don't know how it would be to others—the thing that has set me back on my heels most often, the thing that has been most discouraging from the standpoint of teaching, is that it is a horribly frustrating experience at times, and along separate lines. One of the most frustrating aspects is that you are never sure of how well you're doing. You have no profit-and-loss statement by which to measure your effectiveness. You have no real assurance, and if you have a basic humility about you—which you ought to have, if you are going to be a scholar and a teacher—then you are just never satisfied that you are doing what you ought to be doing, and you are never satisfied that you are spending your life as well as you ought to be spending it. One of the most frustrating periods of all is the period that some colleges are going through now and some have just completed—the horrible end-of-the-semester, the dreadful grading period. I have heard my wife often say she dreaded examination period to come around, because I became a different person—different, I presume, in a disadvantageous way. Nothing is so frustrating as to come to the period of time when with the person you have been working with, trying to communicate to, trying to help develop, you then have to get on the opposite side of the desk, so to speak, and try to evaluate. And anyone who has ever been placed in a position of giving a grade to another individual will have to say, by all odds, this is just at best an intelligent guess. You're never sure how well you get through. You're never sure whether you are a good teacher or not. You have certain satisfactions when you get back an individual exam that hits the mark or when your antenna seems to be on the right frequency with your students. There are certain exhilarating experiences which all artists appreciate, recognize, and enjoy; but there are terrifically frustrating periods when you just don't know if there is anything to this at all, if you are really coming through. It is because of this, the impossibility of ever proving yourself as a teacher, or proving education as such, that all I can ever say is that at best education is a venture in faith. And so if you go into it, you must have tremendous faith of your own—faith in general and faith in the value and the validity of higher education.

There has been one other frustrating experience, to me. I don't believe I'm alone in it; I think you will all come to experience it. I think we are primarily motivated to education and to teaching because of a certain idealism that is wedged in the breast of each of us. And when this

idealism is strong, as it ought to be and I hope it will always be, then of course we are building ourselves up for some awful disillusionments. We come to find, in the final analysis, that teachers are people—that they are neither saints nor devils, and that our teacher colleagues can be as petty as people out in the other walks of life, can be motivated by emotionalism, as opposed to the sheer rationality that we like to assume, as much as other people in other walks of life. They are as much intrigued by gossip as are other people in other walks of life. And these colleagues and this community that I have just sung the praises of do not live up to the best of the ideal that we sometimes contemplate or anticipate. Now, of course, there is nothing really wrong with the community or your colleagues. The failure, of course, when I have suffered these frustrations has been with me—failure in the sense that I have been somewhat too idealistic, too unrealistic, let's say, in terms of expectations. I say too unrealistic and too idealistic in terms of what can normally and ought normally to be expected. And yet I don't really mean too idealistic or too unrealistic in the sense that we shouldn't be that way.

I think what makes a person a successful artist, be it in teaching or some other field, is a tremendous idealistic drive, a drive that comes from a deep emotional attachment to the work. And to be fully successful, at times, you have to make yourself vulnerable for tremendous disillusionments and frustrations at other times. I don't think a successful teacher or a successful person in any field of life is going to hit a plateau and be successful throughout. Success is achieved by hitting pinnacles and then, because it cannot be avoided, coming down again, only to drive up to reach another pinnacle of exhilaration, of achievement, of insight. But it would be unfair for me to give a talk on this general subject and not to indicate certain frustrations that I, at least, have experienced in this regard and which I feel I can anticipate with reasonable assurance of your experiencing also if you go into the field.

Now if what I have said to this point were to result in an equal balancing of pros and cons, which I do not think is the case, there would nevertheless be one other factor which I think is so all-important that I feel it would clearly counterbalance the weight in favor of the pros. I am satisfied in my own mind, based upon my own experience, that up to this point the pros still far outweigh whatever cons I have mentioned. But even if this is not so in your mind, or even if it happened not to be so in an individual's mind, there is one other which I think is all-influential in character.

It is the satisfaction which comes from the recognition that you are engaged in the most important social service of all. I realize, when we think of medicine, the ministry, law, social work, business—what have you—that this is a very dramatic and seemingly exaggerated claim to make. I make it, however, because to me it is rather manifest. The social service that is devoted to and related to the unique characteristic of man is, to my way of thinking, clearly the most important social service of man. And of course the unique characteristic to which I have reference is the intellect. It is the quality of the intellect, it is the heights that the

intellect reaches, that determines the quality of the social service performed in medicine, in ministry, in law. All of man's desires, all of man's efforts, all of man's successes or failures, are related directly to this factor of the human intellect and what is done with it and how qualitative our work is in terms of its nurture and its development.

This is clearly, to my mind, why those in teaching, particularly college teaching, enjoy such remarkable social prestige. You may not be aware of this fact at the present time; we tend too often to think in terms of social stature as being correlated with pay (and since teaching is not paid so well, in terms of what I said earlier, then you might think that this is not a prestigious type of occupation or profession). We who have had contact with college life in many experiences have come to realize—and I with my mouth open at times—the tremendous prestige that is associated with it, and the only explanation I can give is that this is the occupation, this is the profession that is devoted to—in a singular sense—to the unique characteristic of man. And man's future, man's hopes, cannot without flowery language or exaggeration—be said to be directly related to the success, the achievements, that are accomplished in terms of education.

It would be difficult for any of you to know exactly whether or not college teaching is right for you, or you are right for it. You should approach it in a very objective fashion, as objective as you can be. I hope that some of the important rewards and important dissatisfactions that I have reviewed will be of some help to you in judging whether or not it is right for you or you are right for it. I hope that after you go through the process you will come to the conclusion that this is for you, that you are right for it, because of the importance of the undertaking that I have just reviewed and because of our tremendous needs in education—not only for more teachers, but for constantly more and better-qualified teachers, teachers who represent the best, teachers who come from individuals who are the best in terms of abstract reasoning ability, insight, motivation, and so on.

I can assure you that if your decision is in favor of teaching, and if it turns out that you are right for it, that your decision has been correct, you will live the most gratifying, the most satisfying, existence that it is possible to live, that it is your—or anybody's—privilege to live in this very mortal world. I wish you all the best of luck. I've had a great deal of satisfaction myself in having this opportunity to talk this way with you.

PANEL DISCUSSION

Daniel Delakas, Chairman:

It is my pleasure to bring to you the panel on the theme for today, and what we are trying to do, as a group, is perhaps going to become apparent to you as a result of the panel. Perhaps you've heard the old saw about professors complaining that they love the university, they love the campus, they love the library—the only thing wrong with the place is the fact that they have students. Well, the thing that is right about this place and this meeting is that we do have students; and that we are concerned about your attitude toward us as a profession, toward us as a group of people who have dedicated our individual lives to the career that we hope you will become interested in. To do so, we are adopting a set of attitudes which is typical of our profession: to have the truth as we see it presented to you and subjected to your interrogation, your criticism, your investigation.

Now the panel this afternoon is part of the structure. This is the continuation of the discussion of advantages and disadvantages. Tomorrow you will learn about the needs. The following day we hope that this will have fermented, that this will have bubbled, that this will have produced a certain amount of response in you so that you will be interested in learning how you can plan on going ahead if you are interested in preparation for college and university teaching. Then it is to be followed by your opportunity to say whether you think this kind of meeting, this kind of exchange, this kind of presentation, is worthwhile.

Now, without additional material, I would like to present someone who is perhaps to set the tone of the fact that we are talking about your eventual Ph. D., your Doctor of Philosophy degree, which is laughingly referred to as the "meal ticket" or as the badge, the union ticket to the profession. We will start our panel this afternoon with Dr. Carmichael from Mount Mary College, who is himself in philosophy. Dr. Carmichael.

John Carmichael, Jr.:

Thank you very much. I would like to start off by saying that I am very aware of the responsibilities that have been put on my shoulders in addressing an audience such as this, made up of my peers and my students—many of whom, I have no doubt, will be my students very briefly. . . .

The first thing I would like to say is this: that I think that any assessment of the disadvantages and the advantages in college teaching must be necessarily a very personal thing. Consequently, I have no illusions on

this score—that I am saying something which every teacher would mirror throughout this panel discussion, and every teacher would say throughout the state and throughout the country. This is the way I look at the advantages and disadvantages of teaching; this is the way I feel about it.

Now first of all, I would like to make a distinction, as philosophers are wont to do, between the accidental and the essential. I think there are many accidental drawbacks and very many accidental advantages to teaching. For example, a drawback might be the fact that there are certain periods during your academic year when you are under a tremendous strain. An advantage for some of us might be those long summers, but not for all. However, I think it's important to establish right in the beginning what is essential and what is accidental.

I would like to touch upon the one which I think is essential. The essential drawback and the essential advantage that I see in teaching is the student. Teaching consists in a kind of causality—that is, a teacher causes knowledge to come to be in the student. In fact, this is the difference between teaching and talking. Aristotle once observed that the weaving of the weaver lies in the being woven. So also, the teaching of the teacher lies in the being taught. This is why teachers get so upset when their students fall asleep on them because, you see, they have gone from teachers to talkers just like that. A talker doesn't cause—a teacher does. And in the light of this I think that the main drawback in college teaching is this: the student. And the main advantage in college teaching is this: the student.

I think what cuts most deeply into teachers, when they are oppressed by their role, as some of them always seem to be, is just that they are often faced with students who care not at all about the things that mean so much to them. A man who truly loves Milton or Chaucer, and a man who really possesses what he thinks is an insight, or understands a sonnet, wants to communicate this. And he is faced very often with students who couldn't care less about this—many of them, unfortunately, because of the large numbers that we are trying to educate.

Now, this I think is why you sometimes find teachers who in their later years are extremely cynical. They go about muttering blankly to themselves, and why? I think because they have been hurt many times—so much so that in advanced cases of this kind of intellectual paralysis, the teacher cannot in his later years even appreciate the good student when he finds him. This is a sad thing, and in my opinion it is perhaps the most sorrowing experience a teacher can undergo.

On the converse, I promise you this: the major advantage in teaching is once again the student. The wonderful students, the brilliant students, that you can see as you lecture to them the glimmer of light in their eyes. This is a marvelous experience, and it is one that I think brings a satisfaction that nothing else can do—absolutely nothing else. And all the petty things, the lack of money, the lack of prestige, the lack of this, the lack of that—all of them pale in the face of this joy.

I would like to say one thing, however, about the teacher's life, which has struck me, once again personally, as an essential characteristic—

something that makes a lot of it worthwhile. It is this: the word I can use is "freedom." A teacher is free. Actually the word I wish to use is "leisure," but I'm afraid today this is misunderstood, and especially addressing a group of scholars who have spent the last three weeks, probably, carving through bluebooks and student hieroglyphics. Today, what I mean by leisure is time freed for contemplation. Man is a contemplative animal; man wants to look about, to gaze at the world. In the world of today, very few people have that time. They must be here, they must be there; they have very little time to contemplate the things which to them are important. And these are the scant few moments that are truly human, as far as I can see. The true teacher's life consists of a great many moments such as this, when he is contemplating the truth that he wishes to place before his students. This above all things makes the teacher's life rewarding.

Now, simple contemplation is a wonderful thing. But a man who contemplates for a long enough time ought to be allowed to teach—otherwise he will sort of explode what's been building up inside of him. As the child is developed and brought forth from the womb, the thinker develops in his own mind these truths and must give them the light of day. And what better light than that which is given by the mind of the student?

So if we say that teaching is the communication of truth which is previously contemplated, then I would tell you why I love teaching and why teaching is important. It is because your life, as a teacher, is spent in contemplation primarily, and then the communication.

There is only one more point. The great Aristotle once said that teaching is a cooperative art. By that he meant that teaching is not the art by which the sculptor smashes stone into a statue—it seems that way sometimes, but it is not. It is cooperative in the sense that teaching involves the bringing along of that which has an innate capacity for a perfection, of helping it along to that perfection. Look at the obstetrician. If you have seen his face as he comes from the delivery room, having brought forth a child—his face is filled with a brightness and light that is very seldom found in the face of man. I think there are two things bared in that face: there is humility, and there is joy—humility at having seen the marvelous causality that nature worked, and joy because he had been there to help it along. I think a teacher's situation is very similar. There are many moments in a teacher's life that are filled with discouragement, when he sees that he has done nothing in fifty minutes of work, or an hour and fifteen. But there are those moments when he walks in the classroom and his face is lit up that same way: humility because he knows that ultimately it is because of his doing that the student knows, and joy because he has been there to help it along. This, as far as I can see, is the one single thing that makes all the other discouragements and drawbacks seem insignificant by comparison. This is what I think; I hope sometime some of you will think the same way.

[Delakas] As appropriate to the beginning speaker, we began with obstetrics. Now we will go from obstetrics to statistics. Professor Skaggs is also a registrar, and he has been concerned with the training

of teachers in mathematics. So we will go from the birth figures to the course credit figures, and it is my pleasure to present James Leland Skaggs of Milton College.

J. Leland Skaggs:

I stand, as you see, in a somewhat different category from the rest of this panel. I am a registrar, primarily, and secondly a teacher. My fellow panelists are undoubtedly involved to some extent in administrative work, as department chairmen or committee chairmen, or perhaps in other types of administrative work. So perhaps the difference is one of degree.

I planned, when I was in college, to teach in high school. When I finished college in the Depression years, high school jobs were scarce, and I fell into college teaching when suddenly an opportunity was offered. I have not regretted the accident except for a brief period of time.

As registrar I meet both faculty and students, as an administrative officer rather than in the teacher relationship. But I think that the rewards and drawbacks of an administrative officer are closely allied to those of the teacher. It's just possible that some of you know that a college teacher can be frustrated. As Dr. Upton said this morning, they are human, too. I meet the college professor who plans to turn in his senior grades the day after Commencement; I meet the college professor who simply refuses to read and follow instructions. Students do too, but so do professors. They are human, too.

On the other side, I meet the students administratively, and you can guess what some of my experiences may be. I had a senior student this year who came to my office in April, much perturbed—as was I—that he had found (he had been out of college for a year or so and back again) that he was taking one of his courses a second time. Another trial to the registrar is the student who leaves his courses without formality. Or the college student who wants special privileges not available to everyone else. There are drawbacks and frustrations in college work.

I also teach, and I would agree with the first speaker about the rewards of teaching. I teach mathematics. My students generally go into high school teaching or into industry. I have just one who is in college teaching. The registrar deals in grade point averages, too. It was said that I deal in statistics—well, the grade point averages are one of those. But the really great satisfaction, and a personal one in the small college, is observing a student who changes from, say, a 1.6 to a 3.0 average; or in seeing a student change from a drifter to one who has a definite and high goal.

The real satisfactions are those in working with people who are endowed with ideals of service; in working with young people and seeing them develop in intellect and character. I think that the drawbacks in college teaching are not greatly different from the drawbacks in any profession. There's a lot in the individuals with whom we have to work, whether they be students or faculty. But the rewards in college teaching, I think, are unique to that profession, where the college teacher deals with the developing intellect and character in young people.

[Delakas] Well, from obstetrics to statistics I now come to the mystics. Dr. Roger Parr of Marquette University is a specialist in mediaeval literature. He also uses the English language—as a professor of foreign languages, there is a difference between our languages—but he manages to communicate. It is my pleasure to present to you Dr. Roger Parr of Marquette.

Roger Parr:

Thank you. I know that you're likely to think this panel is rigged, because since we are in the profession we have to rationalize our choice. We have decided certainly not to overlook the realistic problems of the profession, but probably to weigh a bit heavily the advantages. It's only by an analysis of those that in any real sense we can withstand the exigencies of the disadvantages. I had an F student come in the other day—and these are certainly some of the disadvantages—who said, "I don't think I deserved the grade you gave me." And there are always such opportunities to try to find something to say. So I finally said, "I think I quite agree with you, but it's the lowest I could give you."

Now certainly it is foolish to deny the practical exigencies of any life role. Certainly these difficulties are many. But I prefer to assent to their reality and also to assent to the importance of a realistic, a personal address to them. Some of these would be that sometimes the teaching turns out to be a projection of the self; that it is a status symbol, in a sense. I don't know why, but often this seems to be one kind of approach to it—that one sort of backs into teaching. Certainly this can be one of its traps. Also, the difficulty of compensation, both psychologically and financially; these certainly are very real. Often, too, teaching turns out to be "a job"; the job of the classroom, the job of being on the committees, the job of papers, the pressure of research if you are to maintain a status at any reputable school or university and to be able to balance this with the real job of communicating in the classroom. These can be very difficult problems. Certainly the research pressure is on, and one should not deny the fact that if you are to move to college or university teaching, this is a very real pressure. There is a great deal of pressure on you to produce, to prove, and to compete with other scholars in other areas, and so forth, when you should be in the classroom. And sometimes this can be a great source of conflict and difficulty and, certainly, anxiety.

Another difficulty can be that teaching can become an ivory tower. You can sort of depart from the world. This ties in a little with the first—kind of backing into the profession. These are some of the difficulties, and certainly they are very real, and we ought to address ourselves to them.

But I would like to take another tack and tell you why I am teaching. I think one's personal testimonial would be the most persuasive way to induce anyone to come into the field. I am in university teaching, and I suspect that I will remain there. Since the choice of one's role in life is essentially a personal thing, I should like to tell you why I am a teacher.

As in the choice of most life roles, I suppose I tend to linger longer

on the advantages of that role. For the advantages in teaching and research center essentially on its relationship to the fulfillment of being. St. Thomas echoes Aristotle when he says that "the more knowledge a person has, the more being he has." And this seems to me to be a tremendous concept: to actually have more being. And this is gained through knowledge. They both state further, and they tell us, that every form of being tends toward the perfection of its form. To me, teaching can be one splendid means of this movement towards the perfection of one's essential form.

The room of the mind is, in a very real sense, a very lonely room. And therefore, like artists, teachers are in a sense alone. Like all artists, their emanation, their source of power, the rule by which they live and progress and fulfill is very difficult to know. Their lives are, by the very nature of things, inexplicable. They seem to rise out of shadows and disappear in a mist. We see them among us; we feel them through their work, through their thinking, through their communication. But rarely do we really know them. With the words of beauty and truth upon their lips, they cry out to us, to the world; and then they vanish, leaving a circle of holy light between them and the world. They leave the spark of an idea; the challenge of an ideal; they leave a memory; they leave, in a very real sense, a poem.

Now, everyone is something of an artist. We all look at life; we live it; and we certainly express our reactions to it. When we look along the voluminous mental horizon it is easy to lose heart. Fortunately there are those among us who can lead the way, who can bring about the intellectual awakening necessary for this exciting trip ahead. In some men, God chose to infuse superior sensitivity and creative faculties; gifts of keen insight; knowledge of the beautiful; coherent extension in reality; a fired wonder in the soul; the virtue of art and inherent culture. These are the great artists and the great teachers. Their insights are expressed in the unified objects of their work. In a teacher, it is the product which he has produced: another mind enlightened and moving on.

I take it that most of us are here today because we have in some way either seen or felt the excitement of the world of ideas. And like wine, it becomes a habit if one persists in its glow. I realize that it is currently fashionable in a practical and scientific world to grade down the artist and certainly very often the teacher. Science can certainly help us to dispel the darkness without; but can it dispel the darkness within? What is the frontier that can remove the fear of any frontier? It is knowledge. Not knowledge merely for some ulterior practical use, but knowledge for the most truly practical use of all. It is knowledge which will create for us this room of the mind, where we are secure, and where more than that, it seems to me, we like to live. There are certainly many ways of doing this. But one of the most immediate is the joining of a profession whose very essence ought to be the very creation of a truly artistic room, with furniture which need not be thrown away periodically in favor of a new design.

Now if you are going into the teaching profession, know that it will not be easy; know that it will be filled, like any life role, with heartache

and backache. But know also that once you have been caught up into the world of ideas, once the reaches of the mind have been tapped, it is a consummation devoutly to be wished. Edna St. Vincent Millay is, for me, not as rewarding as Chaucer, for instance, or Dante, or James Joyce. But she has expressed successfully, I think, the feeling the true artist or the true teacher at some time or other must have felt. That feeling may fade in the immediate practicality of survival, but the memory exists, and this memory keeps us from drowning. She says in her sonnet, and if we replace "Beauty" with "Truth" we can immediately get the meaning,

Euclid alone has looked on Beauty bare.
Let all who prate of Beauty hold their peace,
And lay them prone upon the earth and cease
To ponder on themselves, the while they stare
At nothing, intricately drawn nowhere
In shapes of shifting lineage; let geese
Gabble and hiss, but heroes seek release
From dusty bondage into luminous air.
O blinding hour, O holy, terrible day
When first the shaft into his vision shone
Of light anatomized! Euclid alone
Has looked on Beauty bare. Fortunate they
Who, though once only and then but far away,
Have heard her massive sandal set on stone. [Sonnet XLV]

[Delakas] We have been talking about the poetry of teaching, the beauty of teaching, the truth of teaching. It is our great, great honor, privilege and pleasure to have one of not just Wisconsin's great teachers, but the entire United States', the entire world's great teachers. Professor Helen White has served the profession in a great variety of ways. She has been elected to the presidency of the American Association of University Professors; she has engaged in activities which took her around the world to represent our profession. Here in our own state we have a great teacher, who is going to talk to you on the rewards as well as the drawbacks of college teaching. Professor Helen White.

Helen White:

I thought what you were going to say was we started with obstetrics, and we ended with an old maid. . . .

I don't think you ought to think of teaching unless you like people. Not only clever and charming people, but trying people. You've got to be able to put up with awful headaches. I always think of a boy whom I had a great many years ago, who was a headache from start to finish. By the end of the year, it occurred to me that he had developed an affection for me as a sparring partner—nothing else. Years later, a very kind old student of mine wrote an account of me in the alumni magazine that was really much too gracious, better than I deserved. Various people wrote in to say it was nice; but this boy wrote in an indignant letter. He said

that article was outrageous—it made me sound like a nice old lady. I certainly was nothing of that; I was the most exciting thing that he struck—and in his sophomore year I was the only thing that saved him that year. So you have to have an affection for all sorts of people, and an interest in all sorts of people. That, I think, is a basic thing.

On the other hand, you don't have to teach in college just because you like people or think you'd like to teach. There are other places where people with an enthusiasm for teaching are needed, and very important places. For instance, you're needed in high schools. And I'm inclined to think that one of the silliest things I meet among some of my clever students is the feeling that there's something inferior about teaching in high school. That's nonsense. I intended to be a high school teacher. It was a pure accident that I became a university teacher. And I think I wanted to be a high school teacher partly because the most influential teacher I ever had in my life is an excellent high school teacher. So that whenever a student says to me, "I'd love to teach—I love people; I'm not so keen about subject matter," then I say, "Well, I think that you should teach in high school."

Now what do you need beyond that for teaching in college or university? Well, I think what you need there is a great enthusiasm for some field of learning. It happens that my field of learning is English. When I graduated from college—and I might as well tell you it was in 1917, which to most of you will seem prehistoric, I know—people would say "What are you going to do next year?" And I'd say I was going to teach. And you would see their faces fall, because any girl who had any gumption in 1917 was going to do something much more original than teach. And then when they said, "What are you going to teach?" and I said, "English," then there came a look on their faces as if to say, "Is that all you could think of?" In those days, you put down whatever you had majored in, and then when you were asked what else you could teach, you always put down English, because anybody could teach English.

Well, I've had a chance to look at a great many interesting jobs people have had, and I can't think of anything that's more fun than teaching. And I've had a chance to look at a good many different sorts of fields in which people teach, and I still think that there's no field which is as much fun as the field of English in which to teach. It's quite true that a fair share of the time you have to convince people that English is important; but then, that just adds to the sport. You certainly wouldn't want to teach atomic physics, which every donkey knows is important now.

So I think you couldn't do anything that's more fun than teach English. But I think in order to say that, after a long career of teaching English, you have to have a very great interest in the field. Because a great interest in the field is something that carries you along, is something which is continually challenging you, is something which is continually giving you support. I remember still very vividly indeed the distance between the door and the desk in my first classroom; it was an enormous distance. But I remember it suddenly occurred to me that I was not coming into that room alone; I was coming in with Shakespeare. In other words, whatever my limitations, I had something very big—not to pass on, but to share.

Now it happens that the field of English is a field in which there have been tremendous changes within my lifetime. I am today interested in things that I was not interested in when I left college. I've had to keep adjusting and changing my view of things. I was at a conference in Chicago on my way here, and an expert in linguistics was talking about what is coming in linguistics, what is coming over the horizon. And I asked him to be sure and let me have that name and that title straight. I am still not as interested in linguistics as I am in poetry and in drama and in philosophy and in ethics and in metaphysics and in politics, and in social conditions, and in international relations, and several other things. But the point is that before the summer ends, I've got to have read one or two books in that field, because I'm going to be associated with some people who privately think linguistics is the most important field of all, although they're not going to say that when I'm around because they know that I'm a rather good person for taking up a challenge.

Nevertheless, clearly I must know more than I have known. And I'm sure that that's not the end of it—that five years from now, somebody will be coming along and saying "this is the important thing"—and if I want to keep afloat I will simply have to be taking up this field. Now that's true of any field—any field in which you're going to teach is one in which you've got to keep moving. That's what makes it so exciting; that is, you can't dig in and say that you know all there is to know, because you'll be completely left behind if you do that. On the other hand, any field in which you work is going to be continually giving you new experiences, is going to be stretching your capacity, so that you will have to go on learning and adjusting all the time. And I think it's good for any of us. Sometimes when I talk to one of my graduate students, and he says rather ruefully that really he doesn't have much Latin, and I say, "Well, why not get busy on it—I don't believe you're forty yet," he looks startled. And then I tell him about the Boston lady who, when she was over seventy, started to learn Hebrew because when she met her Maker she wanted to be able to converse with Him in His own language.

Now that, I think, is the great thing about having a field in which you're interested: that life is always bringing you something very exciting, something very exhilarating. Last night in Washington, a little group of us had been through a long Commencement Day program, and we were having a meeting on an encyclopedia which we're working on. Toward 11:30 I discovered that we were having a wonderful time discussing some basic intellectual interests, and suddenly I remembered that if I was to catch my morning plane I'd better get moving. It is a great thing to have something that when you're tired, when you're pressed, will still make you forget everything but the excitement of ideas.

You notice that I haven't said much about sharing it with your students. But of course one of the things that keeps you alive in your field is that you have to keep sharing it with your students; and your students, if they're the right students, will be always trying to teach you. When I first came to Wisconsin and met my first classes in Freshman English, as soon as they got over my inconvenient accent they pitched in to instructing

me on some of the things I obviously did not know. They discovered that I was singularly innocent about the relative advantages of raising beef cattle or dairy cattle; and I still remember some of those boys wrote very interesting themes to put me straight on these important points. I have in my briefcase at my back now pieces of some doctors' theses. I checked my baggage, but I didn't dare risk those theses. The authors of those theses usually begin the thesis by some point on which they thought I was wrong; and they started out to show me what the truth was. I always remember one of my students now finishing his thesis at Oxford; he began by pointing out that a certain attitude which I'd expressed in print was all wrong. Four years later he wrote to tell me that he thought I was right. I regarded that as a great triumph, because this was the voice of the future saying that at least I had the right clue, although of course he's going to do it much better.

What are the disadvantages? Well, I think the greatest disadvantage to being a college or university teacher is that you always have more interesting things to do than you can possibly keep up with. And it means that a fair share of the time you're not doing things as well as they should be done. For instance, I've just finished a large number of seminar reports. Now, I like to embroider my seminar reports; if it's a good one I like to put plenty of suggestions that might start it towards a doctor's dissertation. But some of those had to be done fast because I had to get off to some other things. May I say that I think those other things were important to my students or I would not have been doing them. You will discover that many a time you will do something much less well than you would like to, in order that you can meet a need which is quite crucial. Now I want to mention, for those of you who are going into college and university teaching, what some of those things are.

You must be—I won't say an expert in your field, but you must be a continuing and growing student in your field. We hear so much today about the pressure for publication; I'm always sorry about that. What it should be is encouragement to plunge in and to take part in the large life of your field. Then you will discover that you will have to give time to the activities of your students. You will discover that you will, all their lives, be helping your students with counsel or advice, or simply with objections which they will enjoy hearing stated and rejecting. So that your correspondence is going to be an enormous thing. You're going to discover that your students want your help. My biggest failure recently was one of my students who's gone to the top in TV who gave in my name for a TV committee; and I had sheepishly to say that unfortunately I hadn't got round to keeping up with TV. I've been trying to get a novel written, and I've been trying to keep up with my field, and I've been doing committee work, and I have just not been able to include an adequate amount of TV. I don't own a TV, as a matter of fact.

Then you will have to take your share in the administration of your institution. If you don't want to have your institution a tyranny, you will have to do your share of committee work. And finally, you will have to take your part in the life of your community. Now many a time you will

turn up with people who think of all professors as rather queer; and you know perfectly well that when they get through with you, they will feel confirmed in their opinion. And yet, if your field is to play its part, then you must plunge in. So that you must face the fact that you're never going to feel secure; you're never going to feel that you've had the great joy of doing a perfect thing. But I think you're going to have the great excitement of taking part in the ever-continuing, never-finished business of the creation of civilization.

Tuesday, June 6

Theme for the day: THE NEEDS FOR PROFESSORS

SURPASSING THE OLDER GENERATION

Howard Lee Nostrand

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The title of this lecture may seem to announce an appeal to the spirit of rivalry. But I am skeptical of rivalry. It is essentially a sub-human motive. It satisfies the organism's basic anxiety over mastery of the environment by the easy, short-range gauge of comparison with another organism's performance. Rivalry ignores the rational, human question, Is it enough to do better than someone else?

My appeal is, rather, to your grasp of the urgency in the present human situation. No one knows for sure that we can reverse the defeats which free society has successively undergone in the twentieth century. The Communists would be right that the future is theirs, unless countries such as ours can increase the wisdom and the vigor behind their policies in domestic and foreign affairs. You must, therefore, do better than your parents' generation. And whether you can do this in such fields as business management, government, or science, will depend on the success of those among you who choose education. For education is the key to the development of wisdom and intelligent purposefulness in a people.

It is not easy to outdo the preceding generation. It means creating, inventing. And you find that others have already had the same ideas—until you advance so far in a field that you really stand on the growing edge of human consciousness. Nonetheless many occupations in this changing time have fresh possibilities for creative imagination—including, indeed, the ancient occupation of bringing up children.

What are the creative possibilities of a college or university career in your generation? This question we shall have to "divide and conquer." I suggest we explore several main frontiers where you could do new things:

- I. To create new knowledge in the field you select.
- II. To invent a better model of the "culture" in cultural education.
- III. To lay the basis for a good world order.
- IV. To give the student a more creative role in his own education.

If we can sketch out each of these creative possibilities, we shall be far advanced toward defining the kind of professional that is needed, to make higher education what it ought to become in the decades just ahead of us. And we shall be able to conclude this exploration by drawing some

inferences which you may want to apply, even before you finish college.

I. To create new knowledge.

Every field of knowledge has its growing edge: not only the sciences, but the creative arts and the humanities.

The arts are constantly exploring new imaginative interests and feelings, which in later periods of history will be described in literal language.

Let me use my own field of language and literature as an example of the humanities. Here linguistics is discovering new things about the functioning of languages as systems of sounds and of meanings. Literary criticism is finding new approaches toward understanding the internal structure of a work of art, and new insight into the mysteries of the creative process. Literary history, and the history of ideas, are digging deeper into the relations of literary movements to the other arts, to society, and to the progress of science.

It is a mistake to imagine that as science conquers more and more of the world, it leaves less and less room for the arts and the humane disciplines. On the contrary the advances of science, preceded in the first place by flights of imaginative art, such as science fiction, open up new perspectives, for the creative arts to express and for the interpretive humanities to evaluate. Every major scientific discovery is followed not only by technological applications but by slow, difficult readjustments in our picture of the world and in our self-adaptation to changed beliefs.

There is no career whose creativeness is more fundamental to the modern world than the careers in the fields of basic knowledge about man and the world.

II. To invent a better model of the "culture" in cultural education.

A member of a college or university faculty, as you know, is likely to be a teacher as well as a contributor on some frontier of human understanding. Teaching has of course been well done for thousands of years. Yet the quite new problem of educating for a swiftly changing world is thus far an unconquered frontier.

It was one inspiring aim of "progressive education," in its early days, that the schools should enable the rising generation to go beyond its predecessor. But this difficult aim has been submerged: little is said of it. The fact is, I think, that we are not utilizing the long childhood and adolescence of the human species efficiently enough to meet the needs of modern life.

How should young people be educated, in order to be prepared for conditions that cannot now be foreseen? They need a grasp of working principles so general as to remain constant when their particularized applications are radically altered by new circumstances. But what are these generalized working principles? Here we strike a basic element of education which my generation hands on to yours in a scandalously unsatisfactory state. Whatever field you pick, you must far surpass us here if you are to succeed.

The basic feature I mean is the coherence of the understanding the

student is given of man and the world. Is it too critical to say that each subject gives you a partial picture of yourself, of society, of the physical or the biological world; but that neither you nor we who teach you are capable of putting the uncoordinated fragments together into a coherent basis for wise judgments and wise individual or collective action?

The way I would suggest that you go about overcoming this fault, which I think is a glaring one, is to invent better models of the "culture" which must enter into cultural education. We want to understand and to live our national culture at its best. What is, then, the value system that can be defended as the best, the most enlightened, that this branch of Western civilization can offer to the individual? What is the world picture—derived from all the sciences and from the insights of arts, philosophy, and religion—which serves to enlighten our pattern of values at its best? And what are the methods of inquiry, the roads to truth, which we consider valid, and by which we consequently must build our evolving picture of the world?

Whatever field of knowledge you may select, you will have the great, creative possibility, now dismally unrealized, of putting your fragment of wisdom together with the equally lonesome fragments which lie waiting in the many other fields of learning.

III. To lay the basis for a good world order.

The creative achievement most needed in our time is a social order free of war, free from poverty and from the fear of social injustice: a world society in which every person may have the opportunity to develop all that is good in him—"good" according to his private lights and the values of the culture he lives in.

Such a social order exists now only imperfectly and precariously. You are certainly right at those moments when you feel that you, and all others who have the advantage of an education, ought to contribute somehow toward building a good society, either through your life work or as a hobby. Any educated person who does not do this is a parasite, enjoying conditions of freedom and well-being which may crumble and collapse through his irresponsibility.

The career of a scholar, artist or scientist combined with teaching enables one to make a triple contribution toward a better world order.

Prerequisite to the needed progress is clear definition of the complex ends to be attained, and of the alternative means. The world must look primarily to its scientists, scholars, and creative artists to define the values to be attained, the factual conditions to be utilized or neutralized, and the methods that promise the maximum result with the maximum efficiency of energy. By specializing in one of these fields, therefore, you can play a part in the fundamental process of defining ends and means. An immense amount of research is needed, for example, in the field of non-violent resolution of conflict; and such research always turns out to require the collaboration of specialists from various fields.

Secondly, as a teacher you can contribute toward the desperately needed public attitudes of open-mindedness, tolerance, and confidence in calm reason. By contributing toward the cultural education of which I have

spoken, you can also help to create that dedication to the values of our culture at its best, which is the motive force of social progress.

Thirdly, with the competence and prestige of a specialist in a field of knowledge, you can use some of your hobby time very effectively to strengthen civic projects devoted to such essential causes as civil liberties, conflict resolution, adult education, and the communication between peoples.

Since the worst danger to modern society comes (in my opinion) from its international breakdowns, I suggest that you are not doing enough unless you are prepared to work with your fellow specialists in at least one other country and in at least one language in addition to English. If each of us can meet persons of one other linguistic community on their home ground, we can save ourselves from the ugly reputation of communicating only on our own terms. We shall desperately need persons in all professions who can take a tour of duty abroad for a year or two at a time.

If by chance you make your specialty of teaching a foreign language, literature, and culture, you can then easily make an outsized contribution on the crucial front of relations between peoples. I find that the specialist in this field is not limited to service in one foreign language and culture. For example, when I went to Peru to work in our Embassy as a Cultural Attaché I had only the most academic knowledge of Spanish, yet a related background, largely in French and the Classical languages, made it possible to be speaking Spanish and even writing for publication within a few weeks.

IV. To give the student a more creative role in his own education.

The fourth and last sector of the frontier I am sketching out has inventive possibilities which I suspect you will see more freshly than I.

In my view, the student should not be just someone "under instruction" but a junior partner in education and in society, actually helping to shape policy in those areas of education where students have authentic experience and competence.

Student group attitudes currently have great power, for good or bad, over the effectiveness of high school and college education. Recent studies show chiefly a force of inertia; the reflection of the mediocrity in the culture as a whole. (See particularly Robert E. Guild, "Student Subcultures and Higher Education," in Analysis of the Modern Cultural Crisis, 17th year, University of Washington [Bookstore], Seattle (1961), pages 344-360.) I am convinced, however, that the youthful branch of our national culture has also immense latent forces for good, beginning with a fresh, critical view of the discrepancies between our value system at its best and our adult society's blind spots, failures, and hypocrisies. Alfred North Whitehead once characterized a university as a place where younger and older minds interact, and imagination is liberated. Certainly there is an inspiring possibility here of a coordinated, student contribution to the Idea of a University—a contribution entirely different from those very common student activities such as the election of class officers by popularity contest, the assorted picnics and mob celebrations of the rivalry between schools. One

can imagine a much more civilized school spirit than the sort which can be expressed by boastful or taunting yells. Let me not seem to take this vociferation too seriously; but neither can the college life it symbolizes make any serious contribution toward a better world society!

Educators are currently talking a great deal about "independent study" as a neglected element in higher education. This is a beginning toward a larger place for student initiative. But somehow, teachers and students must find ways of surrounding the individual student with a climate of intellectual curiosity favorable to the higher learning in universities, colleges, junior colleges, and indeed, high schools as well. The college teacher, in fact, must be concerned today with education at all the age levels: he can no longer think of "succeeding" in his educational mission within the college span of four years.

Let us stop here a moment to reconnoiter. What kind of professor is needed in your generation, if he is to realize the new creative possibilities in the four areas we have explored?

The future professor must first of all be a responsible representative of one field of specialized knowledge and skills. A responsible competence as specialist, kept up to date as the field changes, is perhaps enough under this heading if the person is going to use his creative powers only in the three other functions we have listed. But certainly the professor can make a richer contribution under those other headings, and can be a great deal more useful within the specialized field, if he or she actually contributes some new knowledge of importance to his or her fellow specialists.

The second characteristic of the needed type of professor, the concern to help synthesize a model of the culture to which the specialty belongs, is a much more unusual phenomenon on the present college or university campus. A handful of anthropologists have been working out the theoretical basis for describing a culture as a whole, yet few even of these have gone far toward a model of their own complex culture. A few modern-language teachers are concerned to give a responsible and enlightening conception of a foreign culture, and are beginning to try to put together the social-science data and the literary record of a foreign people. A good number of physical scientists are dismayed at the destructive possibilities of nuclear fission, and are endeavoring to find the relation between science and civilized values. A very few specialists in other fields—sociology, social psychology, the biological sciences, philosophy and religion—are ready to contribute toward an enterprise of synthesis, but are hampered by the fact that the enterprise does not exist. This frontier is handed on to you (if I may mix metaphors) practically untouched.

The anxiety to build a better world—our third creative possibility—is quite common among present-day professors. But the anxiety remains ineffectual because it lacks the support of systematic, cooperative effort of creation and invention under three other headings I propose. Specialists simply are not collaborating on a sufficient scale to produce the needed

definitions of ends and means. Since that basic process is defective, it is not surprising that specialists are likewise failing to persuade the general public that their combined knowledge should be looked to as a source of enlightened working principles of policy.

The future professor must finally be sensitive to the branch of our national culture formed by the student body; and sensitive likewise to the creative possibilities of a new student role as junior partner in the constant modification of our culture as a whole. This sensitivity requires first of all an interest in students as persons, and an interest in individual advising as a kind of deeper teaching. But this is not enough. The new professor must go to work in partnership with the independent-minded student, to harness the social force of student group aspirations, anxieties, and interests.

Practical Implications

I promised to conclude this exploration with some inferences you may wish to apply while you are still in college. Let me suggest several ideas for discussion.

1. You might keep notes on the unrealized, creative possibilities of your major field. I suggest, as a practical technique, keeping your ideas on this subject, or any other which you are gradually exploring, in the form of small uniform cards or slips; after you have collected a number of ideas in this form, it is fun to try to group them under tentative, pencil headings, to see what they add up to as they interact. Since you have the advantage of a student's viewpoint, look for creative possibilities not only of expanding and organizing the field of knowledge, but also of teaching it more effectively so as to make it more readily assimilable into the thought-life of the learner.
2. You might try to see how far you can get toward a coherent picture of the culture you belong to. Some of the possible means would be a succession of term papers in different courses but contributing toward a single, personal synthesis; the inclusion in your schedule of an interdepartmental, integrating course, if one is available at the junior or senior level; a series of informal fireside discussions between interested students and professors. As a beginning toward a model of a culture, I suggest trying to list and define its main ideas under the three headings of method or roads to truth; factual truth, or world picture; and ideals, or values.
3. To visualize the possibilities of contributing through your specialty toward a decent world order, you probably need above all to read current discussions of public issues and interpretations of the news, and to discuss current affairs with informed people around you. It might also be useful to visit meetings on campus and in the local community, so as to know the flavor of the various groups working on problems of peace and social conflict.
4. Your present life gives a perfect opportunity to formulate, in your card file, what a professor needs to be from the student's point of view. You also have an intimate view into the laboratory of student psychology, and

a chance to try the creative possibilities of intellectual leadership from the student's side. One of the laboratory questions, I think, is Do a considerable number of students periodically feel "fed up" with learning? If this is the case, why? Is the learning unnecessarily dull, or is the motivation duller than it should be? Or do we have to reckon with both these and perhaps other causal factors? As for the student leadership, it would probably have to be exerted by a group rather than by a lone individual. It will be far more difficult than leadership within the accepted patterns, such as the stereotyped activities of the busy man on campus; but I can imagine no better preparation and credential for a distinguished career as a professor, than to have taken an imaginative, inventive part in some project that brings student life closer to the great Idea of a University.

PANEL DISCUSSION

[The chairman, Carl Wimberly, remarked that due to the physical arrangements, the nature of the topic, and the fact that the panelists were not well known to each other, the meeting would be not so much a panel discussion as a series of remarks by different speakers. He then introduced Ray Maul of the Research Division of the National Education Association. Mr. Maul guided the audience's attention to documents he had supplied.

[In discussing level of preparation, he cited figures showing a steady decrease in percentage of newly employed college teachers holding the doctor's degree, now apparently leveling off. Mr. Maul then considered the contribution of women to the teaching staff, pointing out that while women predominate to the extent of 85% in elementary school, and comprise 53% of high school teachers, they are only about one in four of college teachers. During the years of record, the percentage has remained nearly constant at about 24; thus there is no evidence that employing officials are accepting larger proportions of women. Approximately one-third of both bachelor's and master's degrees are awarded to women, but only one-tenth of the doctor's degrees. Choice of fields of concentration by women is not consonant with the number of teaching positions. For example, six times as many women receive doctor's degrees in psychology as in mathematics, whereas there are twice as many teaching positions in mathematics in colleges and universities as there are in psychology.

[Mr. Maul touched on the large number of positions which are allowed to remain unfilled because people of acceptable competence are not found. He concluded with a discussion of each year's newly available supply of doctor's-degree holders. As many as four out of ten of these already are in positions in which they continue. Of a total of approximately 9000, then, there are only about 5000 in the available reservoir, the remaining 4000 already committed. He also pointed out that while about 85% of new holders of the doctor's degree in English go into college teaching, the comparable figure for chemistry is only 15%.]

Carl Wimberly, Chairman:

Our next speaker is Mr. Richard A. Rettig, who is the 1960-61 President of the United States National Student Association.

Richard A. Pettig:

. . . I have heard Mr. Maul explain the statistical reasons involved, and I've heard a number explain the personal reasons for college teachers

entering college teaching, but I think one thing is overlooked, with the exception of Dr. Nostrand's speech this morning--some of the political factors involved in higher education.

The character of the university environment deals with ideas and people; it is not the only profession that does so, however, and just because it does so does not determine our choice thereof. It has a conservative purpose, politically, the university, and it has a liberal purpose, politically. The conservative purpose is to translate the traditional, to preserve the traditional values of the society and translate them and make them available. The liberal purpose lies in the explanation of those new things occurring on the frontiers of knowledge in such a fashion as to allow the public policy-makers to translate those new events into policy.

And within this function, a third aspect lies in the diffusion of all this knowledge. I think that Jefferson's bill for a federal educational system was for the diffusion of knowledge; and so both aspects involve research and they involve teaching, as far as the understanding, the clarification and diffusion are concerned. There are two political needs that I see as propelling people to go into college teaching.

First of all, we do not have a clear picture of the present world; secondly, we do not have a clear picture of the challenge we face in the contemporary scene. Within two or three years all of you will have graduated from a college or university with a bachelor's degree. I daresay that few of you will have a perspective on the historical and philosophical developments of education in the United States. Education, as we understand it in a free society, is central to our experience. The degree to which it is understood becomes important inasmuch as the enrollment figures we see projected for the next ten years will increase to six million students. It is important, therefore, that we understand this. Is it significant that we do not now understand it in the normal course of our undergraduate curriculum?

A second problem: the two cultures that are spoken of by C. P. Snow. Is it important that within this room there are scientists, or future scientists, and there are those in the humanities, or who will be future teachers in the humanities, and for the most part the two groups do not sit down and talk to each other in understandable language? The fact that this is the case, as outlined in The Two Cultures, presents us with a problem in that we do not fully comprehend the world in which we exist, in which we live. Area studies on the international scene become a third area in which we do not fully understand our own context, our own times. How many people understand the problems of Cuba today in the light of the economic, historic, political, religious, and linguistic background of the western hemisphere, in all of its complexity? Or how many graduate schools, or how many area study programs do you know of on Africa? There is Northwestern's program. Harvard has very little to offer. UCLA is beginning an area study program. But very little is present, and what does this mean today with the African nations having the preponderance of influence within the United Nations? It means that we as a country are ill-equipped to deal with them because the way in which we have organized

our universities and our knowledge-gathering and our knowledge-disseminating institutions has been inadequate to deal with this factor. These can be multiplied in any number of illustrations.

Then the second aspect: the clear picture is related to a lack of clarity about the challenge we face. I speak briefly to the challenge we face by an enemy, although the use of the word "enemy" in the political context internationally is likely to strike some as a word whose connotations evoke hostile emotions. I don't mean to speak of an enemy in psychological terms so much as in political terms, as in the Soviet Union, Communist China, and a bloc whose objective is to see the eventual triumph of socialism throughout the world. Has it ever occurred to you that the distinction between the analysis of politics in the west and those in the Soviet Union is very significantly different? We analyze it in terms of the number of people, the mineral resources, economic resources, political strength, and so on. A strategic victory, as seen from the Soviet Union, is analyzed in terms of superior theoretical insights. That is, the inevitable working out of history will lead us to achieve victory in Laos, victory in Cuba, Africa, etc. Now, this is in the area of rather abstracted thought, and pretty important ideas.

I think that we are beginning to see something of the nature of Soviet education. There is a recent book published by the University of Michigan Press which contains three syllabi of social science courses taught in the University of Moscow. In a three- to five-year period, comparable to the American undergraduate period, every student must take 500 hours in three courses—just about a balanced mix: Political Economy, Historical and Dialectical Materialism, and The Communist Party of the Soviet Union. In our terms that amounts to about three semesters of a three-credit course in each of those; so that's 27 credits of every individual's time being spent in this kind of analysis and this kind of purposive and purposeful intellectual endeavor.

A third factor is the problem of war. I have seen hearings before Sen. Jackson's subcommittee on national policy machinery in which James Perkins of the Carnegie Corporation testified that in 1950, as part of a special committee, he found that there were no graduate schools, or no schools of international relations in the country capable of dealing with the integrated problems of defense and foreign policy and others. And now Henry Kissinger at Harvard and others have begun an integrated response to the problem of war. Hitherto we've had nothing more than massive retaliation and a doctrine of total war being met by a response on the other hand of total peace and total disarmament. Between these two there has to be some working out. Universities have been late in organizing themselves to meet the problem of war.

A final problem, a final illustration, is our relationships with other nations. An article in the March issue of the Annals of the American Academy of Social and Political Science, called "The Political University," written by John Harrisman, describes the Latin American university tradition of educating the free man to develop a national culture—a tradition wholly different from the discipline-oriented university that we know in

this country. Well, a national-culture university orientation makes that university that much more susceptible to a total doctrine presented either by the Soviets or by the Chinese, and if it is in fact the case, as Jose Figueras of Costa Rica says, that we may have lost the student movement in Latin America, it will be because we have failed really to understand the nature of that university tradition as distinct from and opposed to our own.

What I am saying is this: That there are reasons for entering college teaching which are more than personal, and more than statistical, and in certain ways they are political—very, very significant ways. Our universities presently are not organized, although they are in the process of reorganization, to meet and deal with the number of new bodies of knowledge. All the intellectual resources of the universities have not been tapped; the primary resource that's been untapped is the group gathered here—the undergraduate college student. Not much use has really been made with respect to how the undergraduate college student can address himself to some of these problems—even to the problem of how to recruit more people to meet the statistical need for college teachers. And I think there are two reasons for this. One, David Riesman points out, the normal undergraduate perceives the university as a monolithic, unchanging, unchangeable, amorphous mass of administrative and faculty procedures which he cannot affect; secondly, faculties and administrators for the most part have not opened the door to the undergraduate to allow him really to deal with the problem of how we can recruit more people into college teaching—how we can really deal with this problem, and how we can creatively address ourselves to some of these new dimensions and new challenges. I think that perhaps the most significant thing about this meeting this week is this: That you have a unique situation of having had faculty members initiate the work that has brought you here to consider a problem which is, in part, their problem and in large part your problem—how we are going to meet the critical need for staffing our colleges and universities in the future.

And to end, again, on the political factors: The time is short. Henry Kissinger says if we deteriorate in the next fifteen years the way we have in the last, we may have passed the point of recovery. When John Kennedy feels compelled, in the Palace of Versailles, to assert that the West is not on the decline, you know that the reasons behind that statement indicate that there is a good body of thought that will argue that we may have reached that point of no return already. I do not think so. I'm cynical, however, and I think that the task is immense. Creative energies must be turned to this path. We must organize our intellectual resources to the fullest. Undergraduates constitute a large body of those intellectual resources, and can be organized. If we're not able to do this, we may have reached a point where everything we understand in the tradition of freedom and free institutions and free people within our western value system may be in serious jeopardy.

Carl Wimberly, Chairman:

Our next speaker is Mr. R. F. Arragon from Reed College.

R. F. Arragon:

I want to bring us back, if I may, to some of the matters which are related to the more specific topic of need for professors. Although maybe you'll think, when I get into this, that I am using it in a rather curious fashion. I want to discuss certain aspects of college teaching that I think you should be aware of, that are related to possible ways of saving teaching time. Some of these are substitutes for the teacher, others are ways of using the teacher's time more efficiently, supposedly, by saving him from other duties which he may have to perform and thus to make the total teaching time—that is, the teacher time that is actually applied to teaching—perhaps more efficient. My concern with these elements is not whether they save time and money but whether they improve teaching.

May I tick off a few of these elements in this light—you will see that what I am really doing is using this particular problem as a mode of making a few comments on what kind of a milieu you get into when you become college teachers.

You have already had some introduction to mechanical and electronic devices including television. These devices go far beyond just television. There are, of course, the teaching machines. But even beyond that, how many of us are aware how the machine has already affected strongly the method of education which we have been subjected to? I mean now the calculating machine, which can grade examination papers without the touch of human hand, and which can then engage in statistical operations on those papers. This has tended to formalize certain aspects of college education, and you will discover it in what may be known as "objective examinations." A similar kind of effect may well arise out of the teaching machine. All I'm suggesting about these and about television, which you will have to face, is that the point of view that I hope we will take will be not simply that of the efficiency of these, but how can they be used best in the teaching process. We should neither reject them out of preliminary prejudice nor should we swallow them whole because of their novelty. After all, teaching is a transaction—a transaction between the mind of the teacher and the minds of the students, and a transaction among the minds of the students themselves. And the mind is not only a calculating machine, though that is important. Machines now, however, can do that much more rapidly than we ever can, though we can't tell them quite what to do unless we know how to calculate ourselves.

In the next place, the machine can by trial and error now do a good deal of what we normally think of as active thinking—trying out various hypotheses and testing them to see what kind of results you get. This is another important aspect of human thought, and machines can do it—again, of course, if they're properly programmed by a human mind. But there is one element that I think the machine is not yet able to do. The machine does not have that kind of foresight and that kind of insight which will enable

it to look at total situations, with all the complexities they have, so that certain plans and patterns and relationships can be discovered in those, which then can be tested and tried out for their validity. It is that kind of thinking which reaches into a new world and which introduces novelty. Now this is the culminating need of the teacher, because I should suppose that the final thing which we are seeking to teach is that capacity for foresight and for some kind of insight which is peculiar to human intelligence.

The same kind of philosophy flows through the various other items. Take independent study, greater responsibility for the individual student. Why is independent study being proposed? Because presumably you won't need so many teachers. I don't think that is the reason, because that's the wrong test. The reason why it should be used is that it throws the kind of independence upon students which they should have. But it takes a great deal of preparation and it takes a sensitive kind of guidance. I don't think the studies at the present time have indicated that the independent study projects save money. But they do come to some conclusion that educationally they are advantageous. And that is the test I would like to try.

Let's run over one or two of the others. We might save by less non-professional labor on the part of the faculty member. I think this needs considerable care. I was a little disturbed yesterday by some comments which seemed to indicate that paper-grading, examination-grading and the like, were the kind of enterprise which could be left to someone who did not necessarily have a full command of the subject, and that it wasn't as immediately a part of teaching as certain other aspects of teaching. This I would deny. If examinations and papers are not educational devices but merely grading devices, they should be abandoned. At least if they are used as grading devices, they should be made educational. And that means their calculation by a teacher, their use by a teacher.

It is true that for intending teachers, these are valuable experiences. But they should not be taken out of the acting teacher's range; they should be used as experience for the intending teacher, as an undergraduate perhaps. But I do not think they should be used merely as a device for saving teacher time.

It is said also that teachers need not engage in as much administrative activity as they have engaged in. You will find again that this is another problem that you will get into when you become a college teacher. There are innumerable committees; and as a college teacher myself I am often very charmed when two or three committees are set at the same time, since I can then attend only one. But the university or the college is the faculty, and if the faculty were to abandon its part in the development of educational policies, and in the modifications of that policy which are bound to take place in its application, they would have lost control of what they are primarily responsible for: the program whereby the young people are taught. Many of us feel that this is one of the most vital things in teaching; it is a sense of aliveness, a sense of participation, in an enterprise on the part of a college faculty.

The last point is the suggestion that we ought to recapture from college teachers much of the time that they are now giving to research. You may

not know that in many universities the time a full professor is engaged in teaching has come down to four so-called "contact hours," or even less, per week. And it has been proposed—of course, by administrators—that we should recapture some of this time from teachers. They are appointed as teachers. I don't think the answer to this is a simple one. But if and when you become college teachers, you'll be faced by the problem. What is your load in teaching, related to your load in research? How do we calculate these? This becomes an insoluble problem unless we look at it from the point of view that these are not inseparable operations. There is a competition between teaching and research on college faculties; there's no doubt about that. But are they irreconcilable?

If, as a member of a faculty, you are evaluated for promotion and for retention, it then becomes a problem to you of how much research counts towards promotion, and how much teaching counts. The problem of the policy and practice of faculty evaluation is very close to you when you get a college teaching job.

Research as well as teaching is what relates the individual teacher to his discipline. And the discipline is something more than the department in the university or college. Every discipline has its own professional organization; and if you don't realize now you will come to realize the sense of responsibility and attachment which we feel through our professional organizations—that is, to the discipline as a learned field of scholarship or of science. These, then, are merely aspects of that particular problem. I think the reconciliation lies in our view of the nature of education. I hope in ticking off these points I have indicated what I think it ought to be.

Carl Wimberly, Chairman:

The next speaker is Mr. Winslow Hatch of the U. S. Office of Education.

Winslow Hatch:

You probably do not appreciate quite how important you are. Perhaps it is not as appropriate for someone else to say this to you—not so appropriate as it would be for the membership of the committee that set this up. But it is appropriate because we are around the country a great deal and we're sitting in on groups like this; and I would be hard pressed to name a single instance in which any member of the U. S. Office of Education had addressed a group of students that are wrestling with the Number One problem. Now if this is important, the responsibility for you is equally important. I think you should know this. And the fact that faculty members have worked with you in advance of, and will continue to work with you subsequent to, this meeting, is unique. This has a promise and a prospect that cannot be over-emphasized. I probably am hoping more for this conference than for any conference I have ever attended. And I have probably agonized more in the cloakrooms and have sat up longer hours worrying about your problems than any of you. I think much hangs on what you do.

I think you ought to know, and I'll choose my words carefully, that while foot power and manpower were once the bases of national power,

they are no longer such. Brain power is the source of national power. Secondly, you ought to know that while it has a quantitative aspect it also has a qualitative aspect. I think you ought to know that we have lost, or are in the process of losing, the quantitative battle; the last battleground left us, the last margin in which we can operate, is the qualitative one. The question that you could help us to answer is whether the quality of teaching can be made sufficient to give this country that national power it must have—not in a militaristic sense, but so that we can lead and be that which we have aspired to be.

Now, what we have to face is not something that anybody can bring you answers for. This is an honest inquiry. I don't propose to have answers, but I would like awfully badly to have them. And I want you to have them. My own approach is this: There are, I think, two questions—one for us, the teachers, and one for you. And you want to turn these on your tongue for the next two months before you are sure that you've got anything like an honest answer.

The first question, of you—"And gladly teach?"—this is the question you want to be pondering. If you cannot gladly teach, we don't want you teaching. "And gladly teach?"—right now you have no right to answer, because you don't know what teaching is. But the fact that you are here suggests that you, more than others, may some day be able intelligently to answer that question. Can we answer that with confidence and competence? The question for us is, "Do we gladly teach?" Do we have that degree of competence and confidence in the student that enables us to come through with a positive answer?

One way to break into this is simply to ask ourselves what do we know. Is teaching just the acquisition of information? I must say that this is most of what you've gotten under the guise of teaching. But if teaching were the acquisition of information, what do we know? We know that if teaching were the acquisition of information, students could do as well, if not better, were there no teachers. Now, ponder that. We teachers would be completely expendable, were this teaching.

Now what is the evidence? There is the evidence that has come out of two or three conferences—and my office is flooded with literature from all two thousand colleges and universities in the country. The evidence is this: That if in English, instead of 45 contact hours with students you have four seven-minute interviews with them in the course of the semester, they will write better English, through their own activity. Given 28 minutes—28 minutes against 45 hours—you do the job better than teachers can do it for you. English courses have been cut back from five hours to three, to two; the students have picked up the difference, and the result is we are getting better work. In independent study we have cut back from five hours to three, to two, and there's no question but that the learning is better—and it's getting better still—than in those instances in which the teacher has been involved.

And then finally there is the critical, careful research done by the University of Michigan in its Effectiveness of Teaching Program. They set up lecture control, lecture content control; they set up laboratories;

they set up discussion groups in which the teacher had a part; they set up discussion groups in which there was no teacher. Then they set some up in correspondence schools fifty miles away. And when it came to content learning, the ones that never saw a teacher and were kept away from it by fifty miles learned the most in the shortest time. The student group that never saw a teacher was in the second best position. If teaching is the acquisition of information, we could do as well without teachers.

Now what does this mean? I'll try to tell you what the extras are that make teaching, teaching. At a meeting that's the nearest to this that I've ever attended—of 35 of the most brilliant engineering students in the United States, young teachers—some of the country's eminent educators were there. Ralph Tyler, director of the Center on the Behavioral Sciences, a real scholar. Bill McKeachie, University of Michigan, probably the finest classroom exponent of teaching, alert to the principles of learning, that you could name. Were you to abstract what they have to say, you would find that the student has an expertness here that you don't appreciate, because they will say that the essence of teaching is seen through the student's eyes, because the measure of good teaching is the nature of your work. The quality of your learning is an index of the quality of the teaching. In Tyler's words, you learn what you think, feel, and do. Their program is that you use a problem approach because problems you always have. You'll not always have teachers, you'll not always have textbooks, but you'll always have problems. They emphasize the problem approach. And then they say that the only way you can handle problems is to learn the principles, because if you forget the problems in the future, what was learned today in terms of facts will have no application then. The only thing that will be practical will be the principle, as you face the future. And then, so help me, if you have learned enough of the critical facilities to adapt the principle to that problem, you may see your way through.

If you follow down through this material—and we can give it to you—you find them concluding, none of them knowing that this is their conclusion, you find one concluding and reporting that in his view the essence of teaching is guided discovery, that guided discovery was four times as effective as recitation. This is research! Tyler will say that the essential is guidance in the new behavior. And you move over to McKeachie, and he will tell you that the essential thing is the problem method of developmental discussion. Those lie one on top of the other. Now from here on out, nobody has the answers. But what I think you've got to do is to discover for yourself whatever implications you can see in this and such other material as you can develop. We will be happy to put it in your hands. I'll sit there in Washington and I'll answer every letter that you send in, and I'll send you all the information that we can provide. You are that important, and your answers are important to us and to the Commissioner of Education.

Now what one can do with this thing is simply to get the flavor of this discovery. If you need reinforcement for this you ought to know that this is a word that's appearing in most perceptive articles: discovery. Guided discovery. Inquiry: this could be close. And what I hope is that you

will begin to ask yourselves, "What is teaching?" I may or may not have seen it, but what is teaching? From that, draw your own inferences and then ask yourself, "What shall I do come September 15? Will I try to examine whichever of those implications seems to me to be either more practical or to have the greatest impact and import so far as my contribution to teaching is concerned?" This is the best way you'll ever determine whether you should be a college teacher. If this is stuff and foolishness, forget it. If you don't have any sense of commitment, keep out; you'll clutter up the hall.

We want only those who will deliver, and can. . . .

SOME REMARKS ON COLLEGE MATHEMATICS TEACHING

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I guess if I were sitting in the audience tonight (which thank goodness I'm not) I would wonder why I should be listening to a mathematician. I think it is quite clear, from the introduction just given, that one reason you are sitting here tonight listening to a mathematician is that I happen to know Robb Taylor; and in searching around for people to speak at this meeting, he thought of me. I'm glad he did, and I'm very happy to be here. I know it's an old phrase, this thing about people getting up and saying "It's a great pleasure for me to be here tonight," and all that jazz, but it really is!

Now I want in some way tonight to chat with you about some things, and to describe to you the situation in the world of mathematics as it is today. I'm not going to solve the quadratic equation, and I'm not going to show you that trisecting an angle is impossible, or any other nonsense of that type. I am simply going to describe to you the Real World—capital R, capital W—the Real World as it is in mathematics today, to disspell some notions that some of you may have—goodness knows I hope I can do that—and thus to describe to you a Real World which is almost sure eventually to display itself in other fields.

To do this, I am going to share with you some thoughts and some revelations of my personal experiences to show you how fast things are moving. This thing, "share with you" is an odd phrase. I used to teach in a Quaker college that you'll hear about later, and "share with you" is an expression I learned there. It's a very Quakerly phrase meaning "By golly, I've got you here in the room tonight and now you're going to listen to me whether you like it or not!"

The main part of what I want to share with you in the first part of the evening may not seem to you surprising, but it is to me, because I very seldom play the game. I'm going to play the game of numbers, and it shouldn't be surprising that a mathematician would want to play this game. But as you know, numbers can be used to misrepresent almost any situation, they can be used to describe situations to further personal prejudices, and so forth. However, I think the numbers I am going to share with you tonight are numbers which are so impressive that they cannot be used in this way.

The first thing I want to tell you is that the population of the United States is going to double in forty years. Now if you try to think about that for a minute, you'll find it's not so easy a thing to do. The population of the entire country will double in forty years! And if you don't

think that is very impressive, then I'm going to tell you that the population of college students is going to double in ten to fifteen years.

Now this means that we need a large number of new teachers, and I have a hard time talking about large numbers of new teachers except in terms of mathematics. So I am going to try to relate everything I say to the field of mathematics and then to explain to you why I think this description is valid for other fields.

One might wonder why so few people go into the field of mathematics, because—as you know—very few do. I don't know how many in this room are mathematics majors, but I'll bet not very many. In fact, I would call for a show of hands except that I'm afraid nobody would raise his hand! Now, one of the reasons that so few people go into mathematics is that mathematics at the undergraduate level is so uninteresting. And this is not surprising, for one of the reasons it is so uninteresting is that there are so few good mathematics teachers. But that's not surprising, because one of the reasons there are so few good mathematics teachers is that there are so few mathematicians—good or bad!

There are, in the United States and Canada, four thousand Ph. D. 's in mathematics—four thousand! Out of two hundred and fifty thousand college teachers, there are four thousand Ph. D. 's in mathematics. And if that weren't already a sad figure, or if you don't consider it to be so, then I will inform you that only three thousand of these people have decided to teach. There are roughly two thousand colleges and universities in the United States and Canada. So if you know of any place that has two Ph. D. 's in mathematics, they have more than their share and they should give up one! One of the reasons there are so few mathematicians—you see, these figures I'm giving you don't necessarily apply to other fields, but I'm going to try to show you that's irrelevant—one of the reasons there are so few good mathematicians is the undergraduate program in mathematics. The curriculum is outdated, it's uninteresting, it's taught in a manner which leaves much to be desired, and the textbook situation is bad. I never read a mathematics textbook carefully until my junior year in college. A textbook was something you took home to do the assignment out of; I'm sure you all know that. It's only recently that we have begun to write mathematics textbooks which are intended to be read.

In continuing this game of numbers, I want to demonstrate how bad a job we do in mathematics. In the last twelve years, we have given bachelor's degrees in mathematics to 65,000 people. Eleven thousand of these people have gone on to the master's degree, and two thousand five hundred have gone on to the Ph. D. In physics—mathematicians are constantly decrying physics, you know; but they lose the game because the physics department in any science building operates on the first and second floors and sometimes the third floor, while the mathematicians are always on the fourth floor!—in physics in the same period of time, 31,000 people got a bachelor's degree with a major in physics; 10,000 got a master's degree; and 5,100 the Ph. D. Physics had less than half the number of bachelor's degrees that were granted in mathematics and more than twice as many doctor's degrees as mathematics. If you know

just a little bit about common fractions you'll see that the physicists are four times as able as mathematicians to induce students, inspire them, on to the Ph. D. Sixty-five thousand is a large number of people to come under the influence of mathematicians with so few being convinced that they should go on.

I was very happy yesterday morning when it was brought up, during the question period, that someone ought to say something about women. Other than the obvious desirability of talking about women, I would like to say something about women mathematicians. Nineteen thousand of the 65,000 granted a bachelor's degree in the last twelve years were women. Only two thousand of the 11,000 master's degrees in mathematics were given to women, and one hundred forty of the twenty-five hundred Ph. D.'s were women. What in heaven's name is the matter with you women?

In my classes, women are always the very best students. They have the most imagination; they are the most artistic—mathematics is a very artistic subject, it is not a science. I just don't understand this. Somehow, on the American scene today, as I guess in the entire history of this country, and maybe the entire history of Western civilization, and maybe the entire history of mankind, it has been emphasized that mathematics is not for women. I don't understand why. If we are going to solve this tremendous shortage of teachers, the one major thing we must do is to induce more and more women to go into mathematics teaching in a serious way. And in view of the fact that every three or four years, after they are married, they have to drop out for obvious reasons, I think we should allow this in order to reap the benefits of their services as teachers.

Because I want to show that physicists are much better than mathematicians at inspiring people, I will tell you that only sixteen hundred of the 31,000 people getting bachelor's degrees in physics were women, four hundred of the 10,000 getting master's degrees, and one hundred out of 1,500 getting the Ph. D. We in mathematics were only able to induce one hundred forty out of 19,000 to go on to the Ph. D., while the physicists were able to induce one hundred out of 1,500 to go on to the Ph. D. Just to show you that I can do some arithmetic, women comprise less than one per cent of those who go on in mathematics and approximately seven per cent of those who go on in physics.

Now what are the effects of this—that is, the tremendous number of people who take mathematics? To continue the game of numbers, I might tell you that in the last three years—believe me, that's a short time—the number of mathematics majors in the United States has doubled (let alone the number of engineers and all these other people who take mathematics). The number of mathematics majors has doubled. And what has happened to the number of teachers? Well, essentially nothing has happened except that there are fewer Ph. D.'s teaching mathematics today than ten years ago.

And so I think I would like to describe to you some of the situations that this shortage has given rise to. I had decided at the outset that I would give you the "good" effects of all this and then the "bad" effects, and then suddenly I ran across some effects of this situation which I

could describe neither as "good" nor "bad" but just kind of "crumby." In the first place, and from your viewpoint, it is a good effect—I'm speaking here to students, not faculty members. It has brought about in mathematics the buying of graduate students. Graduate students in mathematics today are bought, like football players were five years ago. To show you how bad it is (or how good it is from your viewpoint) there is a senior, a woman I'm happy to report—or lady, as the case may be—at one of our major universities. A mathematics major, and a very bright young lady she is. She has been writing to graduate school departments to get fellowships, and she decided—knowing full well that she could get into almost any graduate school she wanted—to write a large number of letters. About a week ago I was in Washington, D. C., riding on a bus with one of the professors from the mathematics department at her university, and I asked him how she was doing. The total of her offers now exceeds \$25,000. Some of these offers are for as much as \$3,500 just to come and study.

It has created, in the departments of mathematics throughout the country, a crisis situation for the older people. I'm reminded of this by a mathematician friend of mine. He tells about the time that he got his Ph. D. from Harvard and was working his way up through the academic ranks. He was teaching fifteen, sixteen, eighteen hours a week, was expected to do research, to publish or perish (he didn't perish, by the way), to serve on all the committees, and so forth. So he came up through this, and now as an older mathematician, he's chairman of his department. And he tells me that now—and I know this to be true in every department—the older people are doing all the teaching and the younger people are teaching only three to six hours a week. They won't willingly serve on committees; all the young people are the prima donnas. And my poor friend is still teaching fifteen hours a week besides being chairman of the department. He was just born thirty years too soon; you weren't!

There is a mathematician, I think he is twenty-five years old. He has had his Ph. D. only a short while. That's not odd for mathematics; a good many people in mathematics have their Ph. D. by the time they are twenty-two or twenty-three. Anyway, this is a very bright young man. He hasn't had many teaching jobs; he has been living on fellowships. And there was no reason to believe he would ever have to break this up; he could go on for a lifetime on fellowships! But because, I suppose, he was altruistic and wanted to do a little teaching, he decided to hunt for a job. Well, it didn't take much. All he had to do was inform a few people that he was available, and the offers began to roll in. He finally received an offer from an Eastern university for \$9,000—first job! So he turned it down! Why? To accept an offer of \$10,500 from a university on the West Coast. About four or five days ago I ran across some friends of his. They told me that this fellow had been offered a job at a major Midwestern university for \$18,000. And he turned it down! Why? Because said Eastern university had now doubled their previous offer and were giving him \$18,000.

Another effect of the shortage in mathematics is the committee I represent—the Committee on the Undergraduate Program in Mathematics—which

is supported by the National Science Foundation and the Ford Foundation to try to do something about the sad state of affairs in undergraduate mathematics education. I'm a pitch-man for mathematics. I run around telling everybody how naughty they have been and how good they should be. This Committee has four panels, one for engineering and science, one for people going into business or social science, one for teacher training, and one for people intending to be mathematics majors. One of the major items in our Committee is to try to influence more people to go on to the Ph. D. in mathematics. If we have even the slightest effect in the next five years, we will be doing very well. Just recently we have held conferences covering every state in the union. And, as an aside to the point I am trying to make, the most exciting part of the country to work in in education today is the South. The South is bad in education, but the nice part about the South is that they know they're bad. The Midwest is very bad, but they seem to think they're quite good. I'm impressed by the South. But, also, I would like to say just for the benefit of those here that I am recently impressed by the State of Wisconsin. Conferences such as this one are beginning to shape up. The State of Wisconsin is now one of five states in the union—five out of fifty!—in which the state has in its Department of Public Instruction or Department of Education or whatever they call it, a full-time mathematics supervisor. I do not believe this is overloading things in favor of mathematics. I should ask you to count the number of agriculture education supervisors in each of the states. I'll bet there is not one state in the union having fewer than five. In other words, what I'm suggesting here is that there are more than two hundred and fifty people in just agriculture—let alone home economics and all that other sort of thing—but only five in the whole United States in mathematics. Wisconsin is one of these five states, and the man they have is a very good one.

Another thing which this shortage of mathematicians has caused is experimentation. We are designing new curricula for college students, and there are committees working with high school programs. You may have heard of SMSG, School Mathematics Study Group. (One student describes SMSG as "Some Mathematics, Some Garbage.") There are committees working with the elementary program in mathematics, and of course if anyone's mind is poisoned against the beautiful subject of mathematics, it is at the elementary stage—where the student always knows more than the teacher. The experimentation in mathematics, I am glad to report, is across-the-board. It is not like the psychologist and his wife who, upon having twins, decided to rear one and keep the other as a control. And I would like to suggest to you—quite apart from my own personal belief—that the experimentation in mathematics today is good stuff, that is, the kids today are getting good subject matter which we didn't get. And by "we," I mean we—you and I. You and I did not get good stuff in high school, because it wasn't there. But it is there today, and it has gone on very fast. One of the reasons that it has arisen so rapidly is that a great many very good mathematicians are now working on these experimental programs. And quite aside from the fact that I think this is good mathematics, I am in favor of experimentation because I think the effects of it are always bound to be good.

There is a story—I don't know the story in all of its details, but I'll tell one, as we say, isomorphic to it. The story is that Westinghouse Corporation or General Electric (or one of those other corporations currently being found guilty by the United States government) decided to hire a team of psychologists to show the effects of paying attention to the workers, giving them more of a say-so in the running of the factory, and so forth. So what they did was to make life a little easier: they piped in music to the factory, they gave the workers a nice coffee break with freshly-made coffee instead of the stuff that was left over from the previous afternoon, they put out suggestion boxes and gave them money for making suggestions, and so forth. And productivity increased. So the psychologists were all saying, "Aha! You see—productivity has increased: look at all of this great stuff!" So then, just to show what a tremendous effect it had, they decided to take away these things. And one by one they took them away—psychologists standing around behind every machine taking notes. They took away the coffee break, they took away the music, they took away the suggestion boxes. And, of course, all the psychologists—being college professors and having great faith in their own theory—thought that productivity would decrease. The trouble is, it kept on increasing! Now, why? Well, it was clear: people love to have some attention paid to them, even by way of experimentation. We're egotistical. I would feel terrible if all of you turned around suddenly now! I enjoy standing here talking with you, but I like you to pay attention to me as long as I'm going to all this trouble. And that's the way the people at the machines felt: they were going to some trouble to produce the goods, and somebody was paying some attention to them. Real people were paying attention to them—not a bunch of stockholders and so forth. The same thing is going on in mathematics education today. At the high school level there is a lot of experimentation, and the kids are learning it better: not only because it's good mathematics but because they know someone is paying attention to them.

Another effect that the shortage of mathematicians has had, in looking at the Real World of mathematics, is a bad one. And in describing it to you, I'm going to have to take issue with President Miller Upton who made the statement yesterday that teaching may be done by writing a book. I agree with this. He went on further to say that you cannot write a book unless you are a complete master of your subject. I would like to disspell his notions on this point. In mathematics anybody can publish a book! And if you don't believe it, look around. If you can just write pages of the stuff, equations falling just anyplace, it will get published. I think this is a bad effect of the problem of numbers in mathematics these days.

Another effect of the problem of numbers is TV teaching. Television teaching is on us, we will have it, and there is no sense in arguing about whether we should or should not have it. We are having it today, and we will have it in greater spread tomorrow. I'm not saying it's good; I'm not saying it's bad, but I am saying that unless people at all levels, in all areas of subject matter (not just the professional educators) get into the subject, we are going to have very bad teaching by TV. We need

good teaching by TV. There are tremendous possibilities in TV teaching, and mathematics is already enjoying some of these possibilities. Not that I would suggest you ever would, but if you happen to get up early enough in the morning, you might watch Continental Classroom and see what an effect it can have.

Among the bad effects of the problem of numbers is the introduction of teaching machines, which many companies are now producing. The whole idea of the teaching machine is that you might learn mathematics or some other subject in the same way you learn not to touch a hot stove. That is, if you touch a hot burner, you get burned immediately. It is an immediate response to your action. The idea of the teaching machine is to present to you some material, have you respond to it, and let you know immediately whether your response is correct or not. In this way you build up a sequence of successes and failures which lead you, eventually, to the right path. Mathematics, it is felt by the people who produce teaching machines, happens to be in the unique position of being the one subject in which everything is either right or wrong and therefore easy to teach. And, of course, these are just psychologists and businessmen talking; they are not mathematicians.

Another effect of this shortage of mathematics teachers is the larger lecture section. There was a time, not too many years ago, when everybody talked about teaching calculus to not more than thirty students. I don't know of a single university today in which calculus sections have as few as thirty students, and some calculus sections run as high as three hundred students.

I have tried to describe to you some effects of the shortage of college teachers in the world of mathematics. And what I would like to suggest is that mathematics is in a unique position today—and I underline the word "today"—because I believe that the problem of numbers, in terms of students who will be attending college, in terms of people who will be teaching, and so forth... I believe that these same problems will exist in every field, very soon. Which field is likely to be next, I am not quite sure, but mathematics is suffering very badly today; and even though the reasons that I have given you for the shortage of mathematicians may not hold in other fields, that seems to me to be irrelevant. I believe it to be a fact that there will be, in the future, a problem of numbers in every field, as there is today in mathematics. I am not describing to you something which is unique for all time; I am only describing to you something which is unique to the field of mathematics alone today and only today.

Well, that concludes the first part of what I want to say. The other part of what I have to say has to do with dispelling some notions I have noted on the part of undergraduates concerning college teachers. I would like to talk a little bit about college teaching in terms of my own experience. My own experience told me when I was an undergraduate—why it told me this, "I have no idea—that in the world of teachers there were the kind of very good high school teachers who somehow became college teachers. If any of you are abused of this notion, I would like to disabuse you of it. I had thought, as a matter of fact, about going into high school

teaching. And it was only by accident that I went on to graduate school and eventually went into college teaching. The accident was that I couldn't get a job in a high school, and it was a very fortunate accident. When I got my bachelor's degree, I tried to get a job in a high school, and having been turned down, I thought to myself, "Well, you know, nothing else to do, I'll go on to graduate school." Now it doesn't sound as though I was very motivated, but I was. I wanted very badly to be a college teacher and I thought the way to get there was to go into high school teaching first. So if I can dispell that notion, or any similar notion which any of you may harbor at this moment, I will have done more than my share in this conference.

One of the nice things about college teaching is the freedom you have. Now I saw here today in this conference a very attractive-looking young man—I hope he's in the audience tonight—who had a tattoo on his arm. And I want to assure him that he does not have to look forward to a life of posing for Marlboro ads. If he wants to become a college teacher, he can become a college teacher! (if he has the intelligence, and I presume he has).

I have enjoyed, in college teaching, a tremendous freedom. I have always felt that if, tomorrow, I wanted to let my whiskers grow and have a goatee I could do so, and the wife of my boss wouldn't say something to my wife, as may happen in the business world.

I like the education I have received as a college teacher. I have learned much more since I got my Ph. D. than I ever did before.

I like the mobility. In introducing me, Robb referred to me as an "itinerant teacher." I would like to tell you of the mobility I have enjoyed as a college teacher, and I hope you are attracted by it. I received my bachelor's degree and my master's degree from the University of Illinois in Urbana, Illinois. And then I went to a very beautiful city, Seattle, Washington, for my Ph. D., during which time I taught half-time and enjoyed every minute of it. Then I taught for a year at the University of British Columbia. (And just to make this realistic in terms of time, I got my Ph. D. in 1953.) I then went to Haverford College, which you have probably never heard of, in suburban Philadelphia. It's a small, supposed-to-be-excellent Quaker college—at least it was excellent in mathematics, and I enjoyed being there. And you see, that was clear across the country. It was a nice experience for me, because it was a Quaker college and I learned this thing about "share-with-you" which I can always say to every audience and it brings a laugh. While I was there, for five years, I taught in National Science Foundation summer institutes at Oklahoma State University, at the University of Arkansas, at the University of Delaware, and at Franklin and Marshall College. I then got a year's leave of absence to go to the Institute for Advanced Study on a federal grant. So I took a year off at the Institute for Advanced Study, at the end of which I was offered my present job and set up offices at my present location. I now live in Michigan, which is where I originally came from anyway.

So I've moved around a lot. I've avoided some pitfalls, one by accident and one by choice. One pitfall I avoided by accident I have

already described to you: I thought I would be a high school teacher and then decided not to. That was the luckiest thing that ever happened to me, and it took no intelligence at all—I simply couldn't get a job. The second thing involved an intelligent consideration. I was offered a job at a small college one year before I was to get my Ph. D. You know the old story—or maybe you don't, maybe it's a new story—when you get most of the way through your Ph. D., there's always some joker at a nearby college who writes in and says, "We'd like to have an advanced graduate student." Because of course its slave labor: it's cheap. And so the poor guy goes and he teaches for seventeen years, each year thinking he's going to finish his dissertation: but as was described to you yesterday, the hardest thing in the world is to teach on a full-time basis. And you don't very often complete dissertations while you're teaching. Well, luckily I found somebody from whom I could borrow some money so I could keep on going to school, and that was the smartest thing I ever did.

So I have enjoyed the freedom of being in college teaching. I would like to urge you to go into college teaching for that reason. If for no other reason. I have enjoyed the mobility. Maybe you wouldn't enjoy the mobility: I have—I've moved around a lot and I've enjoyed every minute of it and look forward to this kind of thing all the time. Speaking of mobility, I travel now all over the country. I was at my home for six days in April and for seven days in May, and I think I'm due to be there about six days in June.

As a piece of advice I could give you, I hope I've now convinced you that the problem of numbers in mathematics is a very real problem, a very meaningful problem, with some good and some bad effects. I hope I have convinced you that this same situation will prevail in all fields in the very near future. I would like to end with giving you some advice. I know it's always bad to receive advice, but if you receive it right, it's good. Advice should always be kind of listened to and weighed: and you decide whether you want to use it or not, throwing it away if it seems no good.

I would like to urge you to do something that I failed to do. The thing I failed to do was to find out what it was my professors did. I'm not talking about what organizations they belonged to, or how often they contributed to the Red Cross, or how often they went to church—those are personal things. I'm talking about what they actually do, about whether they write books and do research, or spend most of their time helping the students, or holding office-hours, or babysitting as was suggested yesterday. I think that if you are really serious about college teaching, the thing you should do is find out what your college teachers do—what they do in their professional life, what they do as mathematicians, as sociologists, as historians, as language professors, etc. I think you should find out these things, because this is the only way you can come to know what to expect. And I think that our profession has a great deal to offer you. Thank you.

Wednesday, June 7

Theme for the day: VARIATIONS IN THE PATTERN, THE GRADUATE SCHOOL, AND EVALUATION OF THE INSTITUTE

PANEL DISCUSSION

Sister M. Barnarda:

I think the question of "what is a graduate school" can be answered on many different levels. Let me begin by answering it briefly on a very practical level. What does it prepare you for? We usually think of it as preparing mainly for college teaching. A study by Berelson shows that around 1900 about 80% of the people who got doctorates did go into college teaching. In 1958, only 60% of the people who got doctorates went into college teaching; and actually only 20% go into small undergraduate liberal arts colleges. [Then] there is this question of "how much research." Nobody argues that the man who goes onto a graduate faculty must certainly engage in a great deal of research. So we have to remember that the graduate school is attempting, at the same time, to train people who are ultimately going to go into many different kinds of professions, and that college teaching, though it is still the largest one, accounts for only 60%.

The answer on a more essential level—one might say that it's a place where you are free to pursue one particular field of knowledge in depth. You are no longer at the level of general education. It is taken for granted that, by now, at least you're familiar with all of the basic fields of knowledge, and that you have chosen to specialize in one particular one. Specialization is the one way that you can really get to know one field in some kind of real depth. And once you have come to know one field in real depth, it throws light on your understanding of many different avenues of knowledge. You can theorize a good deal about this kind of thing and still not quite know what you mean by having to come to new knowledge through research—not quite what it means when they talk about the "uncertainties" of new conclusions that are arrived at—until you yourself have done a doctoral research problem of some kind and helped to add to this uncertainty. You are given quite a bit of freedom, compared to your undergraduate work, in what you are going to do. There will be certain course requirements in any field; there will be certain types of examinations for which you are preparing. But you won't be taking such heavy class loads; you are restricted usually to twelve semester hours in order to give you time to quite independently pursue knowledge in the field that you are interested in. You will be doing much more of your work through seminars or through research reports than by the type of formal class activity that engaged you as an undergraduate. And most graduate school bulletins will tell you that no amount of course work as such is going to give you the doctorate. You can get A's in any number of courses, but this in itself is not sufficient to give you either the master's or the doctorate.

Now when it comes to actually choosing a graduate school, I'm not going to take the dangerous position of trying to give you a list of "the" good graduate schools, but one or two words might be in order here as to what not to do in choosing your graduate school. Don't go just by a big name, regardless of department. Graduate schools operate very much in terms of departments. Someone yesterday said they're a sort of confederation of departments rather than a whole unified school; so that if you're in a particular field, find out where are the good departments in that field. Some graduate school you may never even have heard of may have a very good graduate program in that field. In order to find out what schools do have programs in your field, your first place to go probably is to books. One is "A Guide to Graduate Study," a book published by the American Council on Education, which gives detailed information on almost 200 graduate schools. It will tell you a little bit about the graduate school, the admission requirements, fees, first year aids, and then the fields of study leading to the degree. A supplement to that, published by the Association of American Colleges, is a paperback that comes out every year on "Fellowships in the Arts and Sciences." This is organized in terms of foundations and other agencies that will give you the fellowship; and it will tell you very specifically where to apply, the purpose of the fellowship, the field, qualifications you need, and all such precise information.

After you've looked around a bit yourself in sources like that, it still is quite essential for you to contact somebody who knows you and who knows your field, so that you can talk over with them the best places, and the best places for you. Part of your planning is going to be the financial end of it—the kinds of financial aid available, the fellowship and scholarship which sometimes comes only by nomination—for instance, the Woodrow Wilson, which you probably know about: you can't apply for it; a faculty member must nominate you for it; but it is one designed specifically for people going into college teaching. If you do find an interested faculty member who nominates you, it is one very good but highly competitive possibility. But don't overlook the many other possibilities, both in terms of foundations—fellowships such as those listed in a book like this—and in terms of the fellowships available at the institution to which you are going. If you don't qualify for a fellowship, there are still many assistantships for which you either have to do part-time teaching on the undergraduate level, serve as a teaching assistant, or in some cases you may be able to do research.

One further word with respect to these fellowships and scholarships, don't look just at the price; you also want to look at does it or does it not include tuition. What is the relative cost of living in that particular city or town where the school is located—because fellowships that might look several hundred dollars more lucrative might not actually be so by the time you figure that you might have to take your tuition out of this one, whereas this other one includes the tuition.

Well, those are just a few very general comments. . . .

Lee Burruss:

Graduate work to many people, I think, seems a kind of unnecessary duplication of what has happened; and to others it seems that college teachers are always going to school. Actually, they're not. The program comes to an end. I think that for many of you it will be a very happy time—a time when, if your experience is like mine, you will meet many very exciting people; you will meet people who are among the world's foremost authorities on your subject; you will meet fellow students who are very interested in your subject; you won't have to worry about some of those dull courses in college that are supposed to make you well-rounded. Now you can concentrate on the things that you like and it will be, I think, a very happy time. When I first thought about college teaching, I was in college. I had heard all the clichés about how long and drawn-out the Ph. D. programs were, and how much dull routine there was, and I decided against it. I wasn't going to spend several more years in graduate school. Later on, though, without much graduate work, I started to teach in college and got so interested in it I decided I'd better get a Ph. D. And I did then go one, and found graduate work tremendously interesting, so that I think you ought to look forward to it with great pleasure.

Your first step, probably, will be toward a master's degree. There are many American institutions that offer master's degrees—600 perhaps, at least—and many different types of master's degrees that are offered. Berelson lists more than 100 kinds of master's degrees; these fall into three or four different categories. Some of them are terminal degrees—degrees taken by people who are planning for business, for instance, perhaps an M. B. A., Master of Business Administration. Some education degrees are terminal, and about half of all masters' today are earned by people who plan to teach on the secondary level.

Then there is another group of degrees in the fine arts—M. F. A., Master of Fine Arts. These degrees are perhaps two or three year degrees, and they carry a good deal of prestige and respect. It's difficult to apply the traditional Ph. D. program to the creative arts, and so we have these other programs that would be recognized in many colleges as quite respectable roads to teaching in some of the fine arts. But in general the road to an academic career would be through a Master of Arts or a Master of Science in one of the departments of learning. An M. A. in English or an M. S. in Biology—this is the usual road to an academic career.

Ordinarily, a master's program takes a year. Ordinarily, I say; and I think a good many people do get their master's in about one school year plus a summer, perhaps. If you are working it may take you two years. The course work is frequently described in terms of a year's requirements, from perhaps 24 hours to as much as 30 semester hours. As Sister Bernarda said, though, it is probably more difficult to prepare to pass the final examinations for the master's than it is to earn the course credits. Incidentally, we should also say that you are required to make A or B grades for graduate credit, so that in addition to earning 24 credit hours you have to have 24 credit hours of A or B work, and then pass a final comprehensive examination over a fairly extensive body of knowledge in your discipline.

There are frequently language requirements, although not always. We sometimes say that a Master of Arts requires a language, Master of Science does not. This isn't completely true; there are some schools that give an M. A. without a language requirement, and there are some Master of Science degrees that do have a language requirement. It would be a very good idea, if you plan to get a Ph. D., to get at least one language requirement out of the way at the master's level.

In the past, a master's degree frequently required a thesis. And many of the requirements still suggest the possibility of a thesis. But there is perhaps less tendency to require a thesis at the master's level. Increasingly, the main requirement is the ability to pass a rather stiff comprehensive exam over your body of knowledge after you've taken about a year's full time work in graduate school.

Howard Nostrand:

I'd like to make one or two more remarks, first of all about scholarship aids. You should compare, as Sr. Bernarda said, the salary; and whether you have tuition exemption in addition to the salary or stipend offered. But there are also two other things that I suggest you compare. One is the work load, because some teaching assistantships will require you to work teaching in class ten hours a week; others, five hours a week, and it would make a big difference as to how much graduate work you could really do. The other thing that you should compare is the interim pay you would get if you are teaching. Some institutions, most institutions in the past, have simply let the graduate student teach and counted him as cheap labor. There is a strong movement now to give very careful intern training and supervision to graduate students who are teaching. And I think that you should notice, in comparing offers, just how much of this training you will get. Most graduate schools publish some sort of advice to the incoming graduate student. The best of the advice that I've found is that written a few years ago by Jacques Barzun at Columbia University, when he was Dean of Graduate Faculties there, and they're still publishing that although Jacques has moved to another position. It's the introductory section of the Graduate Student's Guide of Columbia University. I think the way to get a copy would be to ask the librarian at your institution to write to the Graduate School at Columbia and ask for a copy, and then you could read it there. There isn't very much to read, but it's awfully good advice as far as it goes. Advice not only on how to work within your special field, but how to work outside and beyond it.

When we talk about the doctorate, we should specify whether we're talking about the Ph. D. or other degrees. When the Title IV grants were set up under the National Defense Education Act, graduate student grants—you would get a stipend if you got one of these Title IV grants for three years of graduate study, supposedly enough to finish a doctorate. The question came up whether they should say that these Title IV grants were intended for the Ph. D. or equivalent. The first director of the Title IV program was the Graduate Dean at Harvard, and when they asked him about the equivalent of the Ph. D. he simply said, "there ain't none." I think

that's the general point of view, and I think you should be very careful if you pick some other degree such as Doctor of Education, to see whether it is going to be considered the equivalent of the Ph. D. Unless there is a strong reason for choosing some other doctoral degree, I would if I were you take the Ph. D. Now, most Ph. D.'s are given within a single academic department, and I think that you're favored if you take one of the traditional Ph. D.'s. You have the most security if you take one of the traditional departmental degrees. On the other hand, there are some interdepartmental Ph. D. degrees that grow up, and I think that they're very important things. We've just started a new one, that I'll mention by way of example, in my department—it's still a Romance Ph. D. since it's given under the authorization of the Graduate School to my department to give a doctorate, but instead of a doctorate in Romance Languages and Literature, this new one devotes about half of the course work—about one whole year of course work—to a strong humanistic major in one language and literature, and then the other half of the course work, another school year's worth of course work, is divided among the Psychology of Learning, Testing and Measurements in the College of Education, New Media for the Teaching of Languages, Statistics and Research Designs in Psychology or Education or the social sciences, and some educational supervision. What we're trying to do under this new Ph. D. program is to prepare people for a new kind of position that's growing up—a position where one would be a supervisor of foreign languages in a state or local school system, or would be a specialist in the training of foreign languages in a college or university having a graduate program. This is an effort to provide for a new vocational need, and yet to combine with the specialized training that one needs in order to supervise research and the improvement of language teaching with a broad humanistic background, and a rather deep humanistic background in one's field, language and literature.

I think that you should consider the Ph. D. as a vocational degree. It isn't an attempt to perpetuate some generalized tradition of learning; it's an attempt, really, to prepare you for some specialized function in modern society; but remember that the Ph. D. has to be as broad as the vocation ought to be. You have to have a vocational preparation—something very much broader than the narrow range of skills needed for performing a function in a narrow way.

So I'd suggest that you consider the interdepartmental Ph. D. and that you consider the general philosophy of the Ph. D. as a vocational program. If you can't get a Ph. D. program that really fits the needs of your development as you see those needs after carefully seeking them out, then I would advise you to be honest and not get a Ph. D. but do something else instead. I've advised a number of people, and in a wholly idealistic way, that instead of going through the motions in order to have a label stuck on them—and the Ph. D. has been called "the indispensable prehensile tail for academic climbing"—if it is just a label for you, don't do it. Do something else. You can write a book, you can do some creative writing, you can do something else that will make the doctorate unnecessary if your excellence is something you can establish in a different way. Don't use it just as

a label so that you get a higher salary. It's essentially a training for research as well as for teaching, and if you're using it for the wrong purpose, that isn't honest and you would really do better to be honest with yourself.

If, on the other hand, you are going to get a Ph. D., I would recommend that you get it early. The American system is to try to get it early. You might just as well get it and benefit by the training, use it; I would try to go through the training as fast as you can. If you're a powerful person that can work more hours than most people, then your chances of bogging down in writing the thesis are lessened, but nevertheless your chances are pretty high if you get into other responsibilities. It's a difficult thing to write any long composition, and to write a doctoral thesis while you have family responsibilities and responsibilities for teaching, and so forth—helping to keep the faculty democracy alive in an institution—this is rather dangerous. So if you're going to get a doctorate, I'd say get it early. If you're going to have language requirements to fulfill, I would say fulfill those requirements early; the requirement will usually be simply a reading knowledge of a foreign language. And the intent is that you be able to get outside the English language community in collecting the background for your own scholarship; I think that the intent also is to provide for a responsibility that I spoke of yesterday morning, responsibility of any educated person to contribute towards the contact between his linguistic community and at least one other on the globe, so that we don't simply take the attitude "let them learn English."

I would take the responsibility myself, if I were you, for making a language requirement functional—even if you are in a department that doesn't care. You might be in a department where the teachers themselves are twenty years behind in what goes on in other linguistic communities in their own specialties. It's scandalous how some specialists rely wholly on what happens to have been translated into English. You don't have to be like that—it's part of your innovation, your improvement over the preceding generation, not to be like that. So if you learn the language well enough to pass a reading requirement early in your career, you can use that language. Suppose nothing is assigned; suppose your professors don't happen to know of anything worthwhile that's going on outside the English language in their field. That still isn't necessarily a limitation on you. You have to be the kind of person who can do reading that isn't assigned. So I say, take the requirements; don't just pass them off without a drop of blood to go with the pound of flesh; really make the reading knowledge that you have functional. Find out what's going on in your field in some other language than English.

The problem of breadth is one that I know a number of you are worried about, and I think you're absolutely right in feeling that you should not, in a career as graduate student, simply settle down to narrow specialization within your own field. Now the ideal way to go about solving the problem of breadth would be one that is not, I think, open to us at present. I was talking yesterday of a synthesis of the essentials of a culture—that kind of synthesis doesn't exist. To the extent that we have

it, which is very little, you can broaden your study of one field by relating the detailed knowledge of that field to general principles of understanding, general principles of valid methods for pursuing truth, general principles of fact or world picture, and general principles of value. You should try, in the amateurish way that we're limited to, to relate your field of knowledge to the enlightenment of your culture at its best in its world setting, insofar as you can add in the world setting around it. I hope that in another generation or two, through your efforts, it will be possible for a graduate student successfully and satisfyingly to teach breadth within his field by relating that as particularization to the general principles that confer significance on detail.

Meanwhile, I suggest that you not rely for breadth on broadening into what are considered the contiguous fields surrounding your own field of specialization. You can't really get anywhere that way; specialization is bound to become narrower and narrower, but your time for studying contiguous fields is bound to grow less. You can't rely on that; use it for what it's worth; but try, in the best way you can, to relate your field to your growing concept of our value system.

Robb Taylor:

President Upton, earlier, and now Sister Bernarda have given the keynote that I am to take up when they mentioned the words "anxiety" and "uncertainty." If there's anybody who's more anxious and uncertain than the graduate student who is approaching the Ph. D., looking around for his first full-time teaching position, I am hard-pressed to think who it might be. It is an anxious time. Christmastime comes along, the end of the fall semester, and it looks like things are going to be proceeding in order for the June degree; there are some uncertainties as to whether the dissertation will be finished, and what the committee is going to say about it, but it looks like the odds are fairly good.

Some of the professional associations hold their annual meetings during the Christmas recess. There is a good description—I believe it was in "Harper's"—of what goes on at the American Historical Association meetings where you find the gray-haired or bald-headed professor with his arm around some young buck of about thirty, taking him into a corner of the room and sitting him down—the slave market in operation. Well, these graduate students are actively on the auction block all during the spring semester. Finally, a letter comes in. They've made an offer; should I take it, should I turn it down? If I take it, what kind of a place is it? Is the job what I want to do? If I turn it down, will I get another offer that would be comparable?

They don't all come at one time, so you take each one as it may come, and then wonder whether you're doing the right thing in accepting it or declining it, and you also wonder—I guess maybe "should wonder" would be a more accurate statement—how to appraise an offer. I am assuming here that the offers will be forthcoming; I think Bob Wisner pointed out that this isn't a problematic point at this stage.

But here you are in graduate school, taking a degree, and some place

800 or 1200 miles away calls the chairman of the department or your major professor, and says "we're looking for somebody, a new Ph. D., to come as instructor (or assistant professor) in our department; can you recommend someone?" And he replies, "yes, Smith is a pretty good man. I can recommend him highly; I've worked with him for four years and he's the best graduate student we've had in 73 years in my recollection." So they say, "well, put him on a plane and send him up." Smith goes and buys himself his first new suit in two years, and gets on a plane. He meets the department chairman after he arrives at the hotel, and the department chairman says, "well, I thought we could go out for dinner quietly, and then after that we'll have a few people come by the house and we'll talk for awhile, and then tomorrow I'll take you by to see the deans and you can roam around the department and meet some of the other men who won't be there tonight." In a day or two you're supposed to size up the whole place and decide whether you like it and it will like you. You fly back home again and sit there anxiously trying to write that last chapter on the dissertation, and wonder what's going on back where you were visiting. In a week they write and say "we'd like to have you come up next fall."

Well, if you think this is an uncertain time, you're right. But it doesn't end there. There's one young faculty member I know of who taught in a department as an instructor for a year. At the end of a year Smith was at a big banquet affair, and the chairman of the department was sitting across the table from him. After the soup, the chairman looked across at young instructor Smith and said, "by the way, I'd like you to meet my daughter. Mary, this is Mr. Jones in our department." If you happen to be Mr. Smith, you wonder whether you're anything but a digit. You think your're digits now as undergraduates, perhaps, but when it continues on to this point you wonder whether you're ever going to get any identity.

You wonder during the first year—"How am I doing?" You wonder how your're doing from your own standards; you wonder how the other people in the department, the other people in the college and university, think you're doing—the students as well as your colleagues. There's awfully little that comes back that's concrete, in the way of an appraisal, that you can rely on as being accurate and balanced. You walk out of a lecture and you say, "I wonder whether I got my points across, really." You get the exams back in six weeks' time and you're pretty sure you didn't. And a lot hinges on whether your're doing well or not, in any field. There's a lot that needs to be done in the way of giving people feedback as to how they are doing.

Then there are the often-told stories of departmental feuds—I'm hoping some day to collect some of these academic horror stories of the way professors treat one another. These crop up once in a while—it's not a steady thing, but it certainly does lead to uncertainty. And then there's also a very intriguing uncertainty, as to just when you're going to be able to dictate to the secretary in the department for the one hour you have every two weeks. A petty uncertainty, but an annoying one.

All these questions—"how am I doing?" and all other questions of this kind—lead to uncertainty. I think they are part of the pattern of high mobility in the academic profession. Men are brought in on a one-day or two-day visit, given a quick whiz around the campus, a quick once-over. There are some checks made with references—how thorough these checks are varies from one department to another. It's not surprising, therefore, that a lot of mistakes are made in the process. It leads to men who are disappointed in the institutions they discover when they set foot and take up their work; it leads to institutions who are disappointed in the men they have hired. There's a good bit that should be done, to get more accurate information before a decision of this importance is made. I think it will be done, just because the competition's getting so tough; the institutions will have to hunt harder and they may find out more about the people they're thinking of bringing in. And because the competition is so tough, the graduate student can pick and choose among colleges. There's some movement now to try to concentrate the operation of the academic slave market into a standard hiring date so that you're more likely to be able to balance one offer against another, instead of having to take them in sequence. This should relieve some of the anxiety, if it comes into general use.

Let me say that despite all these uncertainties, and the myths that arise in the absence of firmly established information, it is an intriguing process to watch and it is an intriguing thing to participate in. I think probably you'd all agree that where there is such uncertainty, there's also fascination, a hope, an inspiration that you're getting the right person or that you're taking the right job, and, despite what I said about the uncertainty as to how you're doing, some sense once in a while that it's all very worthwhile.

THE CHOICE OF COLLEGE TEACHING AS A PROFESSION

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The problem of choosing an occupation or profession that is not inherited from the family or undertaken in youthful apprenticeship is a characteristic feature of the mobility of modern society. It might be claimed that education in college prior to professional training was comparable to apprenticeship, especially in the study of a major field, just as later, it has been said, the graduate student sits at the feet of his master, the graduate professor; but neither relationship enables the student to evade the mature and, we hope, responsible weighing of the grounds for making a choice. Our concern here is with the grounds, be they conscious or unconscious, obvious or hidden. What satisfactions are expected from a college teaching career? Perhaps you, as students who have been attracted to come here for a conference on such a career, can suggest answers from the motives that brought you. Opinion surveys of graduate students and professors give some rather mixed evidence. The factors are many and variable. They are confused in the minds of those making a choice because their expectations are based on information that is impressionistic and often inaccurate, in spite of the pamphlet published by the American Council on Education on College Teaching as a Career. To correct such ignorance is a purpose of this conference. Such questions have emerged as: Is teaching a primary or secondary choice? Is interest in subject-matter prior to concern for teaching or vice versa? Drift into the profession has been referred to. It is Gustad's conclusion in his study for the Southern Regional Council. Decision is made more often in graduate school than in college. The process of decision is complex and may be slow, and the point at which the outcome is determined may not be clear. More important, however, is Gustad's corollary that the subject field attracts the student and takes him to graduate school, with consequent delay in the decision as to the way in which that subject can be made into a career. Teaching may be a faute de mieux in some fields (the humanities and to some extent the social sciences) and in others it measures against research and other professional opportunities. If the original choice is of a field, the grounds for this concern with subject-matter become vital for the selection of teaching as a profession. What is the nature of the intellectual interest which develops

into scholarly and scientific purpose? I shall reserve the discussion of these questions until after brief consideration of alternative grounds for choice of college teaching.

The alternatives to the attractiveness of scholarship and science are the attractiveness of the life of the teacher and that of the idea of teaching in itself, each as distinct from scholarly or scientific interest. The advantages of the teacher's way of life are the obverse of the often rehearsed drawbacks. These have both been already much discussed here. They include the pros and cons of security—the marked insecurity and mobility of the early years in contrast with the almost impregnable tenure of the established professor, the relatively low monetary and real income, though not what it was ten years ago and still improving, the freedom from punching the time-clock versus the lack of freedom, day and night and over the week-ends, from a sense of obligation to subject and to students. Have you an image of the professorial pipe and of the feet on the desk with immersion in "culture," the lure perhaps of cultural snobbery, both low-brow and high-brow? Are we not attracted by the thought that our work would be our play, until we wonder whether there is not the peril that all one's reading will be narrowly professional in one's specialty? You may try to balance the pleasure and the boredom of having associates of like interests, the comfort and support of membership in an academic community and the isolation of that community from its environment. In some of these later items we approach intellectual and related interests, in so far as they help to form a way of life. How do these items add up? Do they fit what college students such as you want for a career? What is their relative importance? Are they sufficient or decisive grounds for decision, or are they "fringe benefits" or minor irritations or even at least partly imaginary? We might include in this group of factors administrative and other obligations to the college or university as an intellectual community for which the faculty has a central responsibility, and obligations to the surrounding community, in some cases chiefly local and in others extending to the state and the nation and beyond. Information about all of the items cited and similar ones will be just as important and only as important for the students as the items are for their decisions. At least they should know about matters which they may have overlooked and which they after consideration conclude should be secondary in their ultimate choices. In discussing these, faculty members should be as honest as is the ACE pamphlet I have referred to. What their responsibility is for providing such information and how they might do so are matters for their consideration.

I move closer to fundamental issues in my second alternative to subject-matter, the attractiveness of teaching in itself and in general. Perhaps this should be phrased more precisely as a concern for "teaching people" prior to teaching the subject. Such a ground for choice implies greater concern for personal and social ends, to which the subject becomes a means, such ends in the teacher's management of his relations to students and colleagues as serving others (I do not include the more impersonal service of scholarship and science for men in general), being well liked by

others, and exercising power over them through words. These objectives are connected and delicate to distinguish. They lend themselves readily to self-deception. They are usually present in some measure in most of us. Their dominance is unfortunate and weakens teaching. It may indeed argue insufficient intellectual interest or capacity. The argument has some statistical support from surveys of graduate students. Such conscious or unconscious purposes may prod a curious and active mind to discover the fascination of his field. On the other hand, if we start with curiosity about a subject and an interest in inquiry, the intellectual curiosity may be likely, after one becomes a teacher, to encourage concern with how the subject can be explained to students and how their curiosity and inquiry can be stimulated. I can support this possibility from personal experience. My interest and activity in regard to the problems and methods of teaching (the importance of which I once disparaged) have arisen directly from thinking about my subject, history. I recognized that the way of teaching history should embody the way of thinking historically, since that is what history is. How to understand a subject and how to teach it are corollary. But this point touches the next topic, two of the questions raised in my introduction: What is the nature of the intellectual interest which develops into scholarly and scientific purpose and how will teaching satisfy this purpose?

In trying to answer these questions, I shall examine the connection between teaching and research. Scholarly and scientific curiosity has long had a natural outlet in college teaching, but it meets increasingly demanding competition from research especially in the natural and social sciences. Public and private research bid for the manpower of B. A. 's and Ph. D. 's, and university research bids for the time of faculty. The competition is comparable with that of practice in law, medicine and engineering with teaching and research in those and related fields, but it is sharper. Practitioners do research and teach along with their practice, but not as often as teachers do research or as researchers who are potential teachers are lured into industry, government laboratories and research institutes, lured by the spirit of inquiry as well as by money. The intellectual interest of the scholar and scientist is not static, satisfied by the memorization and repetition of what has already been known and expressed. Even in the traditionalist studies of the humanities it is attracted by the opportunity for investigation and discovery, for revising the interpretations of the past and for drawing fresh conclusions, tentative like those the new ones replace. Research may seem the proper channel for discovery and teaching the channel for the repetition of what has been discovered. So sharp a distinction is however mistaken, for research and teaching are related, mutually helpful activities. Inquiry and discovery are essential to teaching and learning as well as to research. The teacher of undergraduates as well as of graduates is or should be aware of the importance of the sense of discovery, even if it is really re-discovery, on the students' part. Students are neither encyclopedias nor computers. Information and skills are merely the tools of thinking and learning. These tools are useful only if they serve students in the main business of discovering how questions and answers have been arrived at, of recognizing problems and finding ways

of solving them responsibly and independently. This is the essence of learning a subject, i. e., learning how to think in the terms of history or of physics. It is a challenge to the teacher's imagination and inventiveness in the discovery of what his subject-matter has to offer.

There is always fresh interpretation. The record is never closed. Lectures should be exemplars of inquiry, of active thinking-through of the topic, not inert ideas from long-finished notes from the barrel. They should reflect the teacher's growth in insight and in style of presentation, not the paraphrase of a textbook or pastiche of books by authorities (like too many student papers). They should show how to use evidence; they should provoke questions and on occasion arouse dissent, try out a theory of poetry for Lucretius' De Rerum Natura, confront the philosophy of Hobbes with that of Locke. The discussion around a table can stir students into activity even more effectively, encouraging them to have ideas of their own to be tested in such a semi-public hearing, from reading the Iliad or Thomas Mann's Death in Venice, seeking the causes of the American Civil War or evaluating the charter of the United Nations or Das Kapital, the Browning movement or other phenomena of mathematical physics. Individual conferences on papers and on reading can serve the same end. Even an examination should be a means of education, a challenge to the teacher in making it and to the student in taking it, not simply nor primarily a grading instrument. The contrast of two examinations which I remember from my sophomore year in college indicates what I expect of examination questions. One asked for nothing to be repeated as it had been in the lectures or the reading and required the student to reorganize the materials in some more or less fresh perspective. The other was, as I told the instructor who asked my judgment of it, too long for me to have time to think, and his reply was, "You should not have had to think."

The fact that knowledge is not cut-and-dried and stored on mental shelves as in textbooks from the campus bookstore can make teaching an ever novel enterprise in discovery for the teacher. Organizing a course, a lecture, or the ideas for group discussion, an examination or a critique of a student essay is a continuing process of discovery, stimulated by the fresh suggestions and questions of the students. It calls for analysis and synthesis, for the exploration of new materials. It is indeed a form of inquiry that may justifiably be considered a research, though the term itself may not be that important. Research problems and writing of articles and books often come out of teaching, as can be well illustrated from the humanities. In return the research of the teacher will assist the teaching, not chiefly through the finished results that he can lay before his classes but through the problems that he can discuss with the students, so that they have a clearer idea of how inquiry is conducted and of what excitement it can give. Dean Ingraham of Wisconsin, a mathematician, has said that he cannot get on very long without students, for the discoverer wants someone with whom he may talk about his research.

I am presenting an ideal in contrast with often reported practice, I am sure that teaching can be done in many ways suitable to different personalities, but there is no reason (except in the standards of teachers and

administrators) why teaching need be dull and uncreative and simply a means of keeping teachers alive while they "do research." It may be easier to count research papers than to evaluate the intellectual excitement communicated by examining freshly with students one's subject. This fact is important in evaluation of faculty members, too important as pointed out in Gustad's pamphlet for the American Council on Education, just published, on Policies and Practices in Faculty Evaluation. Yet the papers are not necessarily more truly the results of original and significant inquiry than what the teacher brings to his teaching. Such teaching does not seek to arouse and to sharpen students' minds just because he likes them (though he may and should) but because their minds grow in thinking through his subject. His learning continues along with theirs. Encouraging students to learn helps the teacher to learn. If you like the subject well enough to go on learning it, teaching is fun, and, if it is not, one either does not like the subject well enough or is not teaching it imaginatively.

The concern is with meaning and truth and even more significantly with the search for these. The intellectual freedom implicit in this situation is a corollary and a necessary condition of the opportunity and the obligation of discovery in the sciences and in scholarship. Western tradition and discovery are integrally related, as Robert Oppenheimer, the atomic physicist, has well stated. Before quoting him, however, I shall cite the contrary opinion of Jacques Barzun, the author some years ago of The Teacher in America, expressed in his latest book, The House of Intellect. In distinguishing understanding or appreciation from practice, he says,

"With a cautious confidence and sufficient intellectual training, it is possible to master the literature of a subject and gain a proper understanding of it: specifically an understanding of the accepted truths, the disputed problems, the rival schools, and the methods now in favor. This will not enable one to add to what is known, but it will give possession of all that the discipline has to offer the world. The professional's fallacy, in short, is to make no distinction between knowing the subject and knowing the craft."

This passage suggests a body of traditional knowledge or distilled wisdom handed down as inert ideas, as if knowing the craft had nothing to do with knowing the subject or even with judging the trustworthiness of the authorities.

I hold rather to the view of tradition expressed by Oppenheimer in his lecture for the American Council of Learned Societies on "Tradition and Discovery." Tradition, he says, in a sense relevant to our time is

"the matrix which makes discovery, in an important sense, possible. It is the organ of interpretation, of enrichment and understanding that, in the arts, and in the sciences, and even in our common ethical life, gives meaning to new discovery. It is of course

the special mark, the 'cachet spécifique,' of the modern European tradition that has catalyzed, for reasons that no one has really been quite clever enough to understand, an immense outpouring and an immense growth of discovery unlike anything which man has known, an unprecedented use of the past for the future; an unprecedented enrichment of the power to find new things by virtue of the extent to which we were in control of the old; unprecedented in volume, in weight, in wealth, in scope, and unprecedented in many ways in quality also, even if one thinks of the highest days of ancient culture."

Thus history, my own field, in essence traditional and a means of tradition, is continually being rewritten. As a present interpretation of the past, it is constantly refreshed by new discoveries and new points of view. Inquiry is a never-ending responsibility of the historian as teacher and scholar.

Teaching and research are compatible, though teaching may affect the kind and amount of specialized research. A more important conclusion here, however, is that inquiry is an integral part of teaching and that teaching in itself offers satisfactions for teachers who are, as they need to be, scholars and scientists.

One question proposed in my opening remarks is still to be dealt with—How may study in college encourage the scholarly and scientific interests that lead students toward teaching? An answer to the problem is suggested by what I have just been saying about the opportunities for intellectual satisfaction in teaching. The college experience may show the undergraduate who has the capacity and personality suitable to teaching what these opportunities are and at the same time begin to prepare him to take advantage of them. The very courses and methods of instruction that give this satisfaction to the teachers give the students a chance to savor scholarly and scientific inquiry. If something of the maturity and excitement of physics, philosophy or literature is not communicated in college, those who could be aroused to curiosity in those fields may never get to graduate school or they may get there for routine reasons and not suspect what opportunity undergraduate teaching can offer them. How college students are taught may determine whether they want to inquire in a scholarly and scientific manner and to teach. Larger numbers in college and the use of mass media of communication make imaginative and exploratory teaching for promising students more, not less, important. We cannot reserve this experience for the graduate school. The graduate teacher aims, we hope, at inquiry and discovery for his students, but his job is apt to be a specialized one and to emphasize method in a professional way. The broad, interpretative introduction to a field and the recognition of its relation to other fields and of their own special materials, points of view and problems are the particular tasks of the undergraduate college. It can interest students in intellectual activity of various sorts; it can illustrate scholarly and scientific inquiry and give students a chance at this; thus it may get them to thinking seriously about the characteristics of these fields and about what it means to be a scholar or scientist. Such an introduction is a suitable, indeed an

essential, part of liberal education and belongs in a liberal arts college, as it does in the preparation of a teacher. The blame for narrowness of teachers probably rests upon the colleges that began their preparation rather than upon graduate schools. The latter may of course weaken what the colleges started.

Such educational experience is especially important for giving students a chance to try themselves out in one or more fields in order to discover whether they are enough interested in these to make a career of one of them. Do they like the problems, the methods, the range of ideas in a field, its possibilities for inquiry and for critical discussion? Have they the capacities for it, the kinds of reasoning and imagination it takes? Can they talk its language, explain its procedures and purposes to fellow-students and to laymen? The best grounds for answering such questions would seem to be experience in discussing the materials with the students and with teachers, in making inquiries and investigations in collaboration with others and independently and in presenting the conclusions and the case for them in writing or in class. Not only may the teacher thereby recognize the potential scholar, scientist and teacher, but what is more important, the student may be able to identify himself. The result may be negative as well as positive, but this, too, is good. If he has not the patience for inquiry, the curiosity to keep up the search after trivial answers have been found, the critical ability to recognize their triviality, the imagination to guess how to attack a problem, the openmindedness to test new ideas and methods, the inventiveness to suggest new relations, the delight in patterns that make sense out of what seemed meaningless, the courage to be original (even if wrong) and the honesty to report his evidence truthfully, he had better do something else. But if he has such traits and prizes them, he should recognize himself as a potential scholar or scientist and a "natural" for the teaching career. We can all add others peculiarly important for the teacher, such as clarity and patience in explanation, tolerance of intellectual quality even in someone who challenges one's own opinions but intolerance of laziness, stupidity, irresponsibility and fawning imitation of the teacher's words. This is the kind of judgment scholarship committees are apt to want to make. Certainly it is the central purpose of Woodrow Wilson fellowship interviews, as I see them. It should be clear what an advantage to a committee and to the student is the latter's experience in mature consideration of the problems and principles of a field and in some independent and specific inquiry as to one or more of them.

Inquiry is obviously not a game played in the abstract. It has an interest for itself, but it must have content. Teachers teach inquiry and students learn it through subject-matter, through inquiry into something, something that may arouse our curiosity for reasons other than the excitement of discovery alone. The student and teacher of history is curious about what men have done and said, what they have felt and thought as concretely exhibited in past action and expression, and by such discovery as extends his ordinary experience and satisfies more fully his broad curiosity about what men are like. He is interested in the behavior and achievements of human beings and of their societies. Every subject has

its fascinations. I could not feel or explain them all even if there were time here. Yet, from my own teaching of the various humanities related to history and from the activities of my colleagues, I can appreciate some of them not only in literature and philosophy but in physics and economics as well.

Of one field, however, I should like to say something before closing. I speak of it both for itself, since it may seem to have been omitted in my reiteration of the duo, scholar and scientist, and for its importance as an example of what I mean by inquiry and discovery. I would not willfully leave out a third, the artist, and the field of the fine arts, not primarily as art history, the object of scholarship, but as the creative use of the media of the visual arts, until recently scarcely admitted as an academic subject and still often problematic. Art is certainly a form of inquiry, based on tradition and making discoveries beyond tradition. It is the artist as inquirer who is relevant to our theme, an artist such as Picasso, endeavoring throughout a long life to find out how to say what he wants to say. His career has been divided into several so-called periods, according to his changing subject-matter and forms, the blue and the rose periods with their naturalistic shapes, the cubistic geometry, the post-cubistic ironies and horrors, and others. He claims that he has not changed his style. He is the same man, the same artist, seeking in his own way continuously—not the truth in any ordinary sense as of science or history nor truth in a mystic sense, but rather the possibilities of his materials, his ideas and his forms. I hope that I am not distorting his activity when I call it a disciplined attempt to give objective shape to his visual imagination. This is a continuing search and interpretation for what in man's life, in nature, in himself and in his fellows is important and can be given meaning through visual materials. Such too in other media and dimensions are the activities of the scholar, scientist and teacher.

This is a demanding "image" (to use a current cliché) of the college teacher. Perhaps it is not an absolute prerequisite for success in the profession of college teaching in this imperfect world. Less ideal and less scholarly and scientific traits may be more sought for in some quarters of the academic market-place. But even if so, that is not the kind of self-identification I want from college students. I want rather commitment to the values of learning, that learning which changes minds, men, societies and even the natural world in its process.

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